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BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

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VOL. XXIV. APRIL, 1909. No. 1.

CESSPOOLS.

As similar inquiries are made of this office, we print below an excellent article on the subject of cesspools from the Bulletin of the Kansas Board of Health. We regret that we cannot reproduce the cut referred to, but anyone wishing to install such a plant as is indicated can obtain plans from a sanitary engineer.

Our position on the ordinary cesspool for sewage disposal—even when made with cement walls, as cracks are liable to occur, or they are sure to overflow unless regularly emptied—where the water supply is obtained from wells, has always been and is one of uncompromising hostility. But when constructed as a septic tank, arranged for the automatic dumping at proper intervals of the sewage which has been liquefied and, to a considerable extent, purified by the action of the anærobic bacteria in that closed receptacle, into properly laid drain tiles, thus finally disposing of it by subsurface irrigation, we think it allowable, provided that it is located sufficiently far from the well to prevent its possible contamination.

CESSPOOLS.

Numerous inquiries have been received by this department concerning the cesspool method of disposal of house sewage. The questions involve the following propositions, viz.:

1. Does the uncemented cesspool menace the purity of the neighboring ground-water supply used for domestic purposes?

2. If so, how may a cesspool be constructed so as to be sanitarily safe?

3. Should abandoned wells be used as cesspools?

4. What are the dangers, if any, from the open-vault cesspool?

The first proposition must be answered in the affirmative. Naturally, the degree of pollution of a ground-water supply depends on the nature of the soil into which the sewage discharges. If the soil is a close sand or clay, the filtration of the liquid portions of the sewage would be slow and a greater degree of purification obtained than if the soil were a loose sand and gravel, permitting the cesspool to be rapidly emptied with comparatively little filtration directly into the water-bearing stratum. So, also, if there is an intervening stratum of clay or rock between the drainage of the cesspool and the water-bearing stratum, there might be an impervious barrier to the sewage reaching the water below such formation. It must be borne in mind, however, that the piercing of such presumably impervious stratum in boring or digging a well, and the constant possibility of a natural fault or fissure, subjects such barrier to a doubt, or at least indicates the possibility of the sewage finding its way to the underlying water. It seems, therefore, that the only safe cesspool in a community that uses the underground water as its source of supply is the cemented, water-tight one.

It has been proven that sewage from cesspools will in time percolate over 200 feet horizontally, and it must be self-evident that as time goes on the area of infection of the surrounding soil constantly increases: therefore it is asserted that, while a newly constructed cesspool will for a time adequately filter or purify the sewage in a comparatively short distance, the actual distance in which purification takes place is increased in direct proportion to the length of time it has been in use, assuming the sewage to be constant and similar in character.

The second question is a pertinent one, in that the cesspool seems to be a necessity in the towns and cities that are without a sewage system, for the modern house requires some system of sewage disposal. This may be accomplished by the construction of a water-tight cesspool from four to six feet wide and eight to ten feet deep, with several drains of perforated tile near the top and running in different directions and placed immediately below the frost line. Such a cesspool would operate in the nature of a septic tank, much of the organic material being broken up by anærobic bacterial action, the liquid portion of the sewage draining away through the perforated tile drains, making a fine system of subirrigation for grass, trees, etc., and at the same time protecting the water-bearing stratum from pollution.

Prof. William C. Hoad, the board's sanitary and civil engineer, has kindly drawn plans for a sanitary residential sewage-disposal plant, which are herewith reproduced. It is confidently hoped that these plans may be generally adopted throughout the State, particularly in those towns located in the valleys where the ground-water supply lies close to the surface.

NOTES ON A RESIDENTIAL SEWAGE-DISPOSAL PLANT.

The disposal plant shown in the drawing is planned for an ordinary residence, and is designed to treat the liquid wastes from the kitchen sink, bathroom, laundry, and all other waste water coming from the house. The principle of purification employed is that of the septic tank followed by subsurface irrigation. The sewage first enters the septic tank, where suspended matter is held until it is disintegrated by the intense bacterial activity in the tank. The clarified effluent then flows out into the dosing chamber where, by means of either the tipping tray or the automatic siphon (depending upon which device is used) it is flushed out into the distribution pipes of the subsurface irrigation system. Here the sewage trickles out through the open joints of the pipes into the surrounding soil, where it becomes food material for the plant life of the lawn or field.

The drawing shows a tank built of brick, though it could be constructed of either stone masonry or concrete just as well. The tank should be carefully plastered on the inside so as to be water-tight, and the inlet and outlet pipes should be set accurately to the elevations shown. The tipping tray in the dosing chamber can be made by any tinner, while the automatic flushing siphon, which may be used in place of the tipping tray if a somewhat better and more permanent form of construction is desired, can be secured from the manufacturers of automatic flushing appliances.* Whether the flushing siphon or the tipping tray is used for flushing the sewage out into the distribution pipes, the device should be tested after being set in position, to make sure that it is in good working order.

The connection from the house to the septic tank should be of four-inch vitrified clay pipe with bell and spigot joints, carefully laid to a uniform grade, and having the joints well filled with cement mortar. This careful cementing of the joints is particularly important in case the house connection is carried through a grove of trees. The pipes for the distribution system should be sound, hard-burned, three-inch agricultural drain-tile, in foot lengths. They should be laid from a foot to 18 inches below the surface of the ground, and should be laid on a grade of 3 inches to 100 feet. The pipes should be carefully laid so that the ends match. The matter of grade or "fall" should receive careful attention, since, if the grade be too great the lower end of the pipe will receive more than its fair proportion of sewage, while if the grade be too small the upper end will receive too much. The length of this three-inch pipe should be proportioned according to the nature of the soil. If the soil is open and sandy, approximately 200 feet is sufficient for the sewage from an ordinary residence, while if the soil is of a closer texture 300 or 400 feet will be necessary. The system is not well adapted to very tight and retentive clay soils, though it has been used successfully in soils of this character.

*A three-inch siphon, arranged to discharge under a head of fifteen inches of sewage, can be purchased of the Pacific Flush Tank Company, of Chicago, for fifteen dollars.

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A plain board roof can be built over the tank, as shown in the drawing, a trap-door being left by which the interior of the tank may be inspected. Or, if a more permanent form of construction is desired and can be afforded, the walls of the tank may be made thicker, and the whole structure arched over and covered with earth. In this case, however, a large manhole should be left, through which the operation of the tank and dosing chamber may be inspected, and by means of which the tank may be cleaned out.

It should be the expectation that once in from one to four or five years the tank will require cleaning out, the frequency depending largely upon the character of the sewage. The sludge taken from the tank at these cleaning periods is relatively small in amount, and may be best disposed of by running it into a trench or furrow and covering it over with soil. This cleaning out should be done in the fall of the year, if possible, as at this season the sludge in the tank possesses less odor and is less objectionable to handle than at other times.

Particularly for those parts of the State where the rainfall is so small that the water of the sewage, as well as its fertilizing constituents, has an appreciable value, the disposal scheme outlined above may have a considerable economic as well as sanitary value. It is quite possible by this method to maintain in the dryest region a large, well-fertilized and well-watered lawn. The process should be carried on entirely without odor, though, of course. The septic tank should be located at some little distance from the house—say a hundred feet or more, if possible. Particularly the disposal plant should not be near to any open well which is used as a source of water supply.

Third. The use of abandoned wells as cesspools is an extremely dangerous practice, as the sewage is discharged directly into the water-bearing stratum. Certainly there is no argument necessary to support the contention that under no condition should an abandoned well be used as a cesspool or sewage discharged directly into water-bearing stratum.

Fourth. The dangers from the open-vault cesspool include all those of the deep cesspool, and in addition thereto it affords a breeding and feeding-place for the house fly, and the very great and real danger of flies carrying infection from such places to articles of food and drink. It is true that the distance to ground water is greater and therefore a greater degree of filtration purification is obtained than in the deep cesspool, but, on the other hand, the opportunities of direct infection by the fly are so great and numerous as to very greatly outweigh the evils of the pollution of the water.

In many of the smaller towns of this State the cesspool is coming to be a very serious menace to the health of the community. During the past year there is good reason to believe that in several instances the local epidemic of typhoid fever might be attributed to the pollution of the common ground-water supply by the discharge of the contents of cesspools directly into the water-bearing stratum. Individuals and communities are warned of the danger of this practice, and cities are urged to pass such ordinances as will at least regulate the cesspools in accordance with the above suggestions.

REVIEW OF DISEASES FOR APRIL, 1909.

EIGHTY-SEVEN COUNTIES REPORTING.

Ninety-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of noncontagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of April the following diseases have been reported from the counties named:

MEASLES.—Alamance, epidemic; Alleghany, 2 cases; Brunswick, several; Burke, 2; Camden, 10; Carteret, 3; Caswell, several; Catawba, 28; Chatham, 5; Cherokee, 8; Columbus, 3; Craven, several; Davidson, many; Durham, several; Edgecombe, a few; Forsyth, a few; Greene, 2; Harnett; Jones, epidemic; Mecklenburg; Onslow; Person, 50; Randolph, a few; Richmond, 1; Robeson, 50; Surry, 15; Transylvania, epidemic; Wake, 2; Watauga, 10—29 counties.

WHOOPING-COUGH.—Alexander, 20; Alleghany, 1; Bertie, several; Bladen, a few; Burke, in all parts; Cabarrus, 72; Caldwell, 30; Carteret, a few; Caswell, several; Catawba, 3; Chatham, 10; Chowan, many; Clay, several; Cleveland, a few; Columbus, 2; Craven, many; Cumberland; Currituck, a few; Davidson, many; Davie, a few; Duplin, 15; Durham, several; Edgecombe, several; Forsyth, a few; Franklin, many; Granville, 8; Harnett, 22; Haywood, 11; Henderson, many; Hyde, a few; Jackson, several; Macon, 10; Mecklenburg; Onslow; Randolph, several; Rowan, many; Rutherford, 40; Scotland, 36; Swain, 6; Transylvania, a few; Union, a few; Vance, a few; Wake, 10; Watauga, 18; Wayne; Wilson; Yancey, 3—47 counties.

SCARLATINA.—Alexander, 4; Bertie, 2; Caldwell, 15; Caswell, 3; Chatham, 1; Cherokee, 3; Chowan, 7; Cleveland, a few; Craven, 3; Currituck, a few; Davidson, 4; Edgecombe, 4; Forsyth, 3; Guilford, 1; Harnett, 2; Henderson, 1; Hertford, 6; Johnston, 3; Lee, 2; Mecklenburg; Nash, 1; Wake, 20; Yadkin, 3—23 counties.

DIPHTHERIA.—Alexander, 4; Bladen, 2; Carteret, 2; Catawba, 1; Cumberland, 1 or 2; Edgecombe, 2; Gates, 2; Guilford, 1; Harnett, 3; Hyde, a few; Jones, 3; Lenoir, 3; Mecklenburg; New Hanover, 5; Northampton, several; Onslow, 1; Pitt, 2; Richmond, 1; Sampson, 1; Surry, 5; Vance, a few; Wake, 4; Watauga, 1—23 counties.

TYPHOID FEVER.—Alexander, 2; Ashe, 3; Bertie, 1; Bladen, 1; Caldwell, 1; Carteret, several; Chatham, 6; Cherokee, 4; Columbus, 3; Craven, 1; Duplin, 2; Durham, 3 or 4; Edgecombe, 1; Jackson, 2;

Jones, 5; Mecklenburg; Montgomery, 3; Orange, 1; Polk, 3; Randolph, a few; Robeson, 3; Rowan, 1; Swain, 2; Washington, 1; Watauga, 2—25 counties.

MALARIAL FEVER.—Caswell; Hertford; Hyde; Perquimans, in all parts; Robeson; Union—6 counties.

MALARIAL FEVER, PERNICIOUS.—Hertford, 1; Hyde, a few; Robeson, 1.

MALARIAL FEVER, HEMORRHAGIC.—Robeson, 1.

INFLUENZA.—Alamance; Alleghany; Ashe, in all parts; Beaufort; Caswell; Chatham; Currituck; Davie, in all parts; Hertford; Macon; Montgomery; Northampton; Randolph; Rowan; Surry; Washington; Yadkin; Yancey, in all parts—18 counties.

PNEUMONIA.—Alamance, many; Alexander, 22; Alleghany, 3; Ashe, 2; Bertie, several; Brunswick, 4; Caldwell, 10; Camden, 8; Caswell, 4; Catawba, 3; Chatham, 16; Chowan, several; Cleveland, a few; Columbus, 2; Craven, 3; Cumberland, 2 or 3; Davidson, several; Davie, a few; Duplin, 3; Durham, several; Edgecombe, a few; Forsyth, a few; Franklin, a few; Gates, 9; Greene, 6; Harnett, 17; Haywood, 14; Henderson, 3; Hertford, 4; Hyde, a few; Jackson, several; Johnston, many; Jones; Lee, 5; Lincoln, 6; McDowell, several; Macon, 6; Martin, 1; Mecklenburg; Montgomery, 7; Nash, 14; New Hanover, 2; Northampton, many; Onslow, several; Pender, 1; Perquimans, many; Person, 2; Polk, 1; Randolph, several; Richmond, 2; Robeson, 15; Rowan, 5; Rutherford, 2; Sampson, 4; Surry, 5; Swain, 2; Transylvania; Union, 50; Wake, 35; Washington, 3; Watauga, 1; Yadkin, 2; Yancey—63 counties.

MENINGITIS, CEREBRO-SPINAL.—Camden, 2; Guilford, 1; Rowan, 1; Wake, 1.

MUMPS.—Catawba; Columbus; Greene, epidemic; Onslow; Randolph—5 counties.

ROSEOLA.—Tyrrell, 5.

VARICELLA.—Columbus; Greene, many.

SMALLPOX.—Bertie, 1; Caldwell, 90; Cherokee, 1; Craven, 10; Currituck, a few; Duplin, 10; Forsyth, 5; Harnett, 4; Johnston, 16; Jones, 40; Lee, 4; Nash, 3; Onslow, 6; Pasquotank, 17; Perquimans, 3; Pitt, 1; Rowan, 1; Scotland, 6; Wake, 1; Warren, 5; Wayne, 3; Yancey—22 counties.

CHOLERA, IN HOGS.—Cleveland, Currituck, Hertford, Onslow, Tyrrell—5 counties.

No diseases reported from Buncombe, Graham, Iredell and Madison.

No reports received from Anson, Gaston, Halifax, Mitchell, Moore, Rockingham, Stanly and Wilkes.

SUMMARY OF MORTUARY REPORTS FOR MARCH, 1909.

TWENTY-FOUR TOWNS.

	White.	*Colored.*	*Total.*
Aggregate population	155,650	97,050	252,700
Aggregate deaths	134	151	285
Representing temporary annual death rate per 1,000	10.3	18.7	13.5
Causes of Death.			
Typhoid fever	1	0	1
Scarlet fever	3	0	3
Malarial fever	1	1	2
Whooping-cough	1	1	2
Measles	0	1	1
Pneumonia	17	24	41
Consumption	22	23	45
Brain diseases	16	9	25
Heart diseases	15	13	28
Neurotic diseases	2	2	4
Diarrhœal diseases	2	6	8
All other diseases	46	66	112
Accident	3	2	5
Suicide	3	0	3
Violence	2	3	5
	134	151	285
Deaths under 5 years	19	44	63
Stillborn	17	32	49

Mortuary Report for March, 1909.

Towns and Reporters.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total By Towns. By Races.	Total By Towns. Deaths.	Deaths under five years.	Stillborn.
Asheville	W.	15,000	22,000	15.2	17.4	--	--	--	--	--	--	1	9	1	3	--	1	3	--	--	1	19	32	3	4
A. S. Halyburton, C.C.	C.	7,000		22.3		--	--	--	--	--	--	5	2	2	--	--	--	4	--	--	--	13		3	2
Charlotte	W.	18,000	30,000	10.7	16.8	--	1	--	--	--	--	2	1	--	2	--	--	10	--	--	--	16	42	1	2
Dr. F. O. Hawley.	C.	12,000		26.0		--	--	1	--	--	--	2	--	--	--	--	--	20	1	--	2	26		8	3
Dunn	W.	2,000	2,500	12.0	9.6	--	--	--	--	--	--	1	--	--	1	--	--	--	--	--	--	2	2	--	--
Dr. I. F. Hicks.	C.	500		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Durham	W.	12,000	18,000	10.0	14.0	--	--	--	--	--	--	1	2	1	3	1	--	2	--	--	--	10	21	--	--
Dr. T. A. Mann.	C.	6,000		22.0		--	--	--	--	--	1	1	3	--	1	--	--	5	--	--	--	11		--	5
Edenton	W.	3,000	6,000	20.0	12.0	--	--	--	--	--	--	2	1	--	--	--	--	1	1	--	--	5	6	3	--
Dr. H. M. S. Cason.	C.	3,000		4.0		--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1		--	--
Elizabeth City	W.	6,000	10,000	6.0	9.6	--	--	--	--	--	--	2	1	--	--	--	--	--	--	--	--	3	8	--	--
Dr. C. B. Williams.	C.	4,000		15.0		--	--	--	--	--	--	--	1	--	1	--	2	1	--	--	--	5		2	2
Fayetteville	W.	5,000	8,500	7.2	11.3	--	--	--	--	--	--	--	--	1	2	--	--	--	--	--	--	3	8	--	1
Dr. A. S. Rose.	C.	3,500		17.1		--	--	--	--	--	--	--	2	1	--	--	1	1	--	--	--	5		1	1
Goldsboro	W.	6,000	10,000	4.0	8.4	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2	7	--	1
Robt. A. Creech, Esq.	C.	4,000		15.0		--	--	--	--	--	--	1	--	--	--	--	--	4	--	--	--	5		3	1
Greensboro	W.	10,000	16,000	6.0	6.7	--	--	--	--	--	--	--	2	--	--	--	--	2	1	--	--	5	9	1	--
Dr. Edmund Harrison.	C.	6,000		8.0		--	--	--	--	--	--	--	--	2	--	--	--	2	--	--	--	4		1	2
High Point	W.	9,200	11,200	2.6	7.5	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2	7	--	1
Dr. C. E. Reitzel.	C.	2,000		30.0		--	--	--	--	1	--	2	2	--	--	--	--	--	--	--	--	5		2	--
Lenoir	W.	3,000	4,000	8.0	9.0	--	1	--	--	--	--	--	1	--	--	--	--	--	--	--	--	2	3	--	--
Dr. W. P. Ivey.	C.	1,000		12.0		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Lexington	W.	3,000	3,600	8.0	6.7	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	2	2	--	--
Jno. H. Moyer, Mayor.	C.	600		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Marion	W.	1,500	1,600	0.0	7.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	1	--	--
Dr. M. L. Justice.	C.	100		120.0		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
New Bern	W.	7,500	15,000	8.0	12.8	--	--	1	--	--	--	--	--	1	1	--	--	1	1	--	--	5	16	1	1
Dr. Charles Duffy.	C.	7,500		17.6		--	--	--	--	--	--	2	1	2	--	--	2	4	--	--	--	11		7	1
Oxford	W.	2,000	4,000	12.0	9.0	--	--	--	--	--	--	--	--	1	--	--	--	1	--	--	--	2	3	--	1
Dr. S. D. Booth.	C.	2,000		6.0		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Raleigh	W.	14,000	25,000	18.8	21.1	--	--	--	--	--	--	2	2	5	--	--	1	9	--	2	1	22	44	2	4
T. P. Sale, Clerk B. H.	C.	11,000		24.0		--	--	--	--	--	--	4	5	1	4	--	--	6	1	--	1	22		6	6
Rocky Mount	W.	5,000	8,000	7.2	7.5	--	--	--	--	--	--	1	--	1	1	--	--	--	--	--	--	3	5	--	--
Dr. I. P. Battle.	C.	3,000		8.0		--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2		1	--
Salem	W.	3,000	3,400	12.0	14.1	--	--	--	--	--	--	--	--	--	--	--	--	3	--	--	--	3	4	--	--
F. H. Vogler, Mayor.	C.	400		30.0		--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1		--	--
Salisbury	W.	7,400	11,000	13.0	12.0	--	1	--	--	--	--	1	1	2	--	--	--	3	--	--	--	8	11	1	1
Dr. H. T. Trantham.	C.	3,600		10.0		--	--	--	--	--	--	2	1	--	--	--	--	--	--	--	--	3		--	1
Southport	W.	1,000	1,600	0.0	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	0	--	--
Dr. J. A. Dosher.	C.	600		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Tarboro	W.	1,500	3,000	8.0	24.0	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1	6	--	--
Dr. W. J. Thigpen.	C.	1,500		40.0		--	--	--	--	--	--	--	1	--	1	--	--	3	--	--	--	5		2	--
Weldon	W.	750	1,500	0.0	16.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	2	--	--
J. T. Gooch, Mayor.	C.	750		32.0		--	--	--	--	--	--	--	--	--	1	--	--	1	--	--	--	2		--	--
Wilmington	W.	16,000	30,000	11.2	15.6	1	--	--	--	--	--	2	2	1	2	1	--	5	--	1	--	15	39	5	1
Dr. Charles T. Harper.	C.	14,000		20.6		--	--	--	--	--	--	4	4	1	4	2	1	8	--	--	--	24		7	8
Wilson	W.	3,800	6,800	12.6	12.3	--	--	--	--	1	--	--	--	1	--	--	--	2	--	--	--	4	7	2	--
Dr. W. S. Anderson.	C.	3,000		12.0		--	--	--	--	--	--	--	1	--	--	--	--	2	--	--	--	3		1	--

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance.....Dr. H. M. Montgomery.
Alexander.....Dr. O. L. Hollar.
Alleghany.....Dr. Robert Thompson.
Anson.....Dr. E. S. Ashe.
Ashe.....Dr. J. T. Testerman.
Beaufort.....Dr. D. T. Tayloe.
Bertie.....Dr. John L. Pritchard.
Bladen.....Dr. L. B. Evans.
Brunswick.....Dr. J. Arthur Dosher.
Buncombe.....Dr. D. L. Laxton.
Burke.....Dr. J. R. Anderson.
Cabarrus.....Dr. R. S. Young.
Caldwell.....Dr. C. L. Wilson.
Camden.....Dr. C. G. Ferebee.
Carteret.....Dr. W. E. Headen.
Caswell.....Dr. S. A. Malloy.
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BULLETIN

OF THE

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VOL. XXIV. MAY, 1909. No. 2.

HOT-WEATHER CARE OF INFANTS AND YOUNG CHILDREN.

(CIRCULAR OF THE DEPARTMENT OF HEALTH, CITY OF CHICAGO.)

Prepared by F. W. REILLY, M. D., Assistant Commissioner of Health.

This Circular was first issued in June, 1895—thirteen years ago. During the previous twelve years there had been 106,524 deaths of infants and children under 5 years of age in Chicago. During the last twelve years there have been only 101,802 such deaths.

Had the death rate of the earlier period been maintained during the last twelve years, there would have been 205,920 deaths among children under five years of age, whereas only 101,802 actually occurred.

Taken in connection with the increased population—nearly doubled in the twelve years—this reduced death rate means, therefore, a saving of 104,118 lives in this period.

In the belief that the advice herein contained has had something to do with this gratifying showing, this Fourteenth edition has been prepared for gratis distribution.

ABOUT ONE-QUARTER of the total yearly deaths of infants and young children in this city occur in the two hottest months of the year—July and August.

Heat kills off babies and young children largely because it spoils their milk and other food quickly. Even breast milk, when the mother is over-

heated, may give the baby colic or "summer complaint." If a mother is very hot she should draw a teaspoonful or so from the breast before nursing her baby. If the breast has not been given for two hours or more it should be drawn off in the same way. And if the mother has been badly frightened or very angry or excited, it is not safe to give the breast at all; it should be drawn and the milk thrown away.

THE PROPER FOOD FOR BABIES IS MOTHER'S MILK. No sensible mother needs advice on this point. If she is fairly healthy her breast will give all the nourishment the child should have until it begins to cut its teeth—the sixth or eighth month. Up to this time it is a sin to give an infant one morsel of solid food of any kind, or anything but breast milk (if the mother is healthy), except water in moderate quantity occasionally, *but never soon after nursing.*

Many infants are killed every year by bringing them to the table with the family and giving them a little bit of this, that and the other—meat, vegetables, pie, pickles, etc., which the little stomach is not fitted for. They are *killed* just as surely, though not so quickly, as if they had been fed poison out of a drug store.

When the baby that is fed this way sickens and dies it is said that the baby died of "diarrhea," or "dysentery," or "cholera infantum," or "summer complaint," or "teething," or "convulsions," or "brain fever."

But these are only names for the result of poisoning with unfit food.

Wait till the baby gets its teeth before you put food into its mouth that needs to be chewed.

IF THE BREAST MILK GIVES OUT, or becomes thin or watery, or if the mother has consumption or any other long-standing sickness, the baby must be put on the bottle and fed with cow's milk.

Get the best milk you can afford, and if it isn't good, or "sours" too soon, or doesn't give enough cream, *send word to the Health Office, 215 Madison Street.* Be sure to give your name and address and a Milk Inspector will be sent to find out where the trouble is.*

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*Pure, wholesome milk for sick children in the congested districts can be obtained at a price below cost at any of the following stations maintained by the Milk Commission of the Children's Hospital Society:

WEST SIDE—Chicago Commons, Grand ave. and Morgan st.; Association Home, 575 W. North ave.; Northwestern University Settlement, Augusta and Noble sts.; Little Wanderers' Day Nursery, 283 N. Oakley ave.; St. Elizabeth Day Nursery, 655 N. Ashland ave.; Settlement House, 783 Armitage ave.; Hull House, 335 S. Halsted st.; Maxwell Settlement, 485 S. Clinton st.; United Hebrew Charities Dispensary, Maxwell and Morgan sts.; Gad's Hill Center, Robey and 22d sts.; Rush Medical Dispensary, 759 W. Harrison st.

SOUTH SIDE—Children's South Side Free Dispensary, 6236 Jackson Park ave.; Jackson Park Sanitarium, 64th st. and the lake; Little Wanderers' Day Nursery, 833 W. 49th st.; refectories of the following parks: Armour Square, 33d st. and 5th ave.; Cornell Square, 50th and Wood sts.; Davis Square, 44th st. and Marshfield ave.; Jackson Park; Mark White Square, 29th and Halsted sts.; Ogden Park, 64th st. and Center ave.; Sherman Park, 52d st. and Center ave.; Washington Park.

NORTH SIDE—Christopher House, 120 E. Fullerton ave.; Olivet House, 46 Vedder st.

As soon as the milk is received take what is to be used for the baby and "scald" it. *Don't let it boil.*

A good way is to set a pan of cold water on the stove and put the vessel containing baby's milk into this pan; just as soon as the water comes to a boil take it off. This amounts to what is called "sterilizing" or "pasteurizing" the milk.

If the milk was sweet and hadn't begun to "turn" when it was received it will keep sweet for twenty-four hours or more after being treated this way, even in hot weather. But, of course, it should be kept in a close-covered vessel or fruit jar or stoppered bottle. Whatever it is kept in should be thoroughly scalded—cover, stopper and all—just before the milk is put in.

If you have an ice-box or refrigerator to put the milk in, or can in any other way keep it from "turning," it is better to let it stand for about six hours and then pour off the upper half for the baby's milk. This should then be "scalded." If you can't do this, a little cream should be added to the baby's milk—say one tablespoonful of cream to two or three of the milk.

To make this nearly like breast milk add two cups of water that has been boiled to each cup of milk and enough white sugar to make it as sweet as breast milk.

(Milk sugar, *if perfectly pure*, is better than white or cane sugar.)

If this mixture is too rich the baby will throw it up in curds or lumps, or it will pass through the bowels in white flakes and shreds. If this happens add more boiled water to the mixture until you find just what strength the baby's stomach will stand—what it can digest.

When the baby is about a month old barley water should be used instead of plain water. Put two tablespoonfuls of pearl barley in four cups of cold water; boil an hour or more—down to two cups; strain through a close cloth; add a pinch of salt and sweeten to breast-milk taste. Add this to a cup of "scalded" cow's milk treated as before described and begin feeding this strength.

Gradually use more milk and less barley water, until at about six months of age the child is getting two-thirds milk and one-third barley water.

Next to healthy breast milk this will make as good food as the infant can get during teething and weaning. Then comes the pure milk—always "scalded"—bread and milk, baked potato and milk, oatmeal porridge—which can't be boiled too long, *never less than two hours*—and always eaten with milk, and the milk always "scalded," *not boiled.*

Don't overfeed the baby. Once in two or three hours is often enough to suckle or feed a baby until it is four or five weeks old; after that do not feed so often.

When a baby is about six months old it will generally thrive best if fed only once during the night and four or five times regularly during the day. It is bad for a baby's stomach and bowels to feed it too often or too much at a time—especially in hot weather.

A new-born baby's stomach will hold from two to three tablespoonfuls, and not more than this amount—rather less—should be given at a time during the first week or so of a bottle-fed baby's life.

As the baby grows the quantity should be gradually increased, so that at the end of the first month it may be taking about four tablespoonfuls at a meal. Some children will require more and others will not stand so much—*but there is more danger of giving too much at a time than too little.*

Don't stick the nipple in the baby's mouth every time it cries. If the baby is properly fed at regular times it won't get hungry enough to make it cry, and it is foolish to feed it whenever it cries instead of trying to find out the trouble. It may be only thirsty and a swallow or two of cold water—not a big drink—will stop it; or its clothes may be uncomfortable, or its napkin need changing.

Try to find out what makes it cry, and then use "mother wit." And don't be afraid of giving the baby a drink of water. It needs water as much as milk. It needs more water in proportion to its size and weight, and oftener, than its mother does. Thirst causes more needless suffering to babies than anything else. *Give the baby a drink!*—but be sure the water is pure, by having been either boiled or filtered.

Don't feed the baby with a spoon. Sucking is the natural way that a baby takes its food. It needs the sucking action of the lips and mouth and tongue to mix its food with the fluids of the mouth and to keep it from getting into the stomach too fast.

Spoon feeding doesn't do this.

Use a plain common bottle for feeding, with a rubber nipple and *no tube.*

Fancy nursing bottles, with long rubber tubes and patent contrivances, besides costing money, can't be cleaned easily, and babies don't do well with them in other ways. The more simple the bottle and the nipple, the better for the baby. The rubber-tube bottle is a device of the Evil One for lazy mothers. It's bad enough when a mother can't suckle her own infant at her own breast; let her at least take it in her arms and hold the bottle and "mother" it while it feeds.

Take the nipple off after each feeding and *at once* boil both bottle and nipple for at least ten minutes. Before using again rinse the bottle and nipple in water that has been boiled—about a quart of water with half a teaspoonful of soda in it; or keep them in a pan of soda and water when not in use.

More babies get "sore mouth" and "wind colic" and "summer complaint," for want of care of the nursing bottle than from any other one cause. A little stale milk around the neck of the bottle or in the nipple will set up a ferment which is poison to the delicate lining of a baby's mouth and throat and stomach.

KEEP FLIES AWAY FROM BABY'S FOOD—FLIES ARE FREQUENTLY CONVEYORS OF DISEASE GERMS.

Of course, the baby's bottle food should be warm—about the same as breast milk, or "blood heat"; that is, as warm as the inside of the mouth.

KEEP THE BABY CLEAN AND IT WILL STAND THE HEAT BETTER. When the thermometer is at eighty or ninety in the shade it isn't easy to keep the baby cool. But it can always be kept clean, and will then be more comfortable and have a better chance of living through the hot weather. It should have at least one full bath every day and oftener during extreme heat. Never bathe within one hour after feeding it. Bathe first; feed afterwards.

Dress as lightly as possible. It will be better stark naked—except for a napkin and binder—some hours a day during the hot weather when indoors. But keep it in the open air, out of the hot sun, as much as you can between sunrise and sunset. The outdoor air, even of a dirty street, is fresher and better than the air in the house.

Fresh air is the breath of life in a baby's nostrils. Take it or send it to the parks, or open squares, or the lake shore as often as you can.

In the changeable summer climate of Chicago, care must be taken against sudden chilling. A thin soft flannel binder, wound two or three times around the body will do more to guard against this chilling than the ordinary full dress of frock, vest, skirts, drawers, socks, etc.

This binder should be only wide enough to cover the belly, an inch or so above the navel and a couple of inches below. It should be wound smooth and free from creases or folds, and fitted with a few stitches of soft darning cotton—not pins.

This binder and a napkin are all the dress a baby needs during the heat of the day in the house in summer.

DO NOT LET THE BABY SLEEP IN THE SAME BED WITH ANY OTHER PERSON. If there is no crib, the mother should put a couple of chairs at her bedside, with any sort of soft covering on them—not feather pillows or hot woolen stuffs—and let the baby sleep there. It will be more comfortable on a summer night than lying against the hot body of its mother, and will not be so apt to disturb or be disturbed.

The backs of the chairs will keep the baby from falling, and the mother can readily reach over to care for it when necessary.

SCREEN THE BABY'S BED SO THAT FLIES CANNOT ANNOY AND POSSIBLY INFECT IT WHILE ASLEEP.

DO NOT DRUG THE BABY. If after all your care the baby should fall sick, do not "pour drugs of which you know nothing, into a body of which you know less."

There is no mother in the city of Chicago that cannot get the best of medical treatment for her sick baby without money and without price, if she is unable to pay. Call a doctor instead of spending money for patent medicines, "soothing syrups" or "cure-alls," which will probably do your baby more harm than good.

Although this advice is more directly for babies during the first year of life, the sense of it applies quite as well to older children.

Don't overfeed them, and don't let them overfeed themselves.

Don't give them rich food—meats, gravies, pastries, cake, etc.—nor a great variety. The simpler and plainer the better—plenty of milk, whole-wheat bread, oatmeal, baked potatoes, baked apples and fresh fruit of all kinds, in season, but be sure the fruit is ripe and fresh. Roasts and stews and made dishes and—*pie* will come soon enough, and so will dyspepsia.

Keep up the daily full bath until it becomes a fixed habit.

Keep them out in the open air as much as possible the whole year round, and send them into the country whenever you can do so, *but only to places where the water is pure.*

If a baby or child is worth having it's worth saving, and more than half of the babies and young children that die in Chicago every year could be saved, by following the advice here given.

PREPARATION OF MILK FOR THE BABY.

Home Pasteurization.

In previous talks we have had something to say about care of babies in hot weather. This week we want to talk about milk.

All mothers understand that great care must be taken at all times in feeding the baby. Also that it is of especial importance that this be done during the summer months. The trouble is that so many mothers, and especially young mothers, do not know what is best to do. This is why the Department of Health has had prepared the circular, printed in many languages, which gives a great deal of good advice on this subject.

As has already been explained, in former talks, the baby's only article of diet is milk. So, if the milk is not clean and wholesome, there is small chance for the baby to live and thrive as it should and as it has a right to do.

The Department believes that if milk is properly treated before being fed, there will be much less sickness among the babies, and, as a matter of course, a material reduction of the number of deaths during the milk-feeding period. It has been thoroughly demonstrated that heating or pasteurizing the milk makes it more digestible and therefore more easily assimilated.

For home pasteurization of milk, the following method is recommended:

Take a bottle of milk with the cap or stopper in it, just as it comes from the milkman. Place the bottle on a saucer or small plate in a pan or boiler filled with cold water, which should come up to within two inches of the top of the bottle. It should then be placed over the fire and allowed to remain until the water around the bottle begins to boil. Then take it off the fire and set aside to cool.

The water must not be allowed to boil for any length of time, and the milk must be cooled in the water, the entire process consuming about forty or forty-five minutes.

This treatment will destroy practically all the bacteria present, especially the pathogenic ones, such as typhoid bacilli, which we have carefully studied and have been able to destroy by this method. Such a bottle of cooked milk, if kept in the ice box, will remain sweet for over a week.

If careful attention is paid to the above directions, the milk will have only a very slight, if any, suggestion of "cooked" taste, while its nutritive and digestible qualities will not be impaired.

The Department advises that this method be pursued in the preparation of all milk (except "certified"), intended to be fed to infants and the young.—*Chicago Health Department Talks* (*No.* 28).

STATE ASSOCIATION OF COUNTY SUPERINTENDENTS OF HEALTH.

The organization of men engaged in the same work into a society or association of their own is always of benefit to the work with which they are charged. Although general rules may be laid down for the performance of their duties, the conditions are not always the same, and the interchange of ideas and of experience, even if no set papers are read, are sure to be helpful.

Acting upon the suggestion of Dr. Glenn, the Superintendent of Health of Gaston County, we have requested all the Superintendents who can do so to attend the meeting of the State Medical Society at Asheville, which convenes June 16th, for the special purpose of forming a State Association. There are, however, two serious obstacles in the way of getting a large number of them present at any definite time. First, the difficulty that every general practitioner finds in leaving his practice—generally cases of confinement for which he is engaged—and, second, in this particular instance, the location of the place of meeting, in the extreme western portion of the State. The combination of engagements, loss of time and expense, we fear, will deter a good many. But Asheville and our beautiful mountain country are always attractive and the added inducement of the meeting of the Medical Society will, we trust, bring together a large proportion of the Superintendents.

It is particularly desirable to have such a meeting this year because of the fact that, under the law, all the Superintendents were elected or re-elected on the first Monday of May. A number of them are sure to be new men, and they would find such a conference with their fellows and with the Secretary of the Board of Health especially helpful. Dr. Rankin, the newly elected Secretary of the Board, who takes office July 1st, will also be present, and it not only would be pleasant but profitable to meet him and become personally acquainted with the man with whom they are to work in the future. We can say for the outgoing Secretary that it would be a pleasure to him to meet as many of his fellow-laborers as possible. So we hope a goodly number will be present at Asheville, and that the proposed association may be started off in good shape.

REVIEW OF DISEASES FOR APRIL, 1909.

EIGHTY-ONE COUNTIES REPORTING.

Ninety-three counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of April the following diseases have been reported from the counties named:

MEASLES.—Alamance, epidemic; Ashe, 10 cases; Bladen, a few; Buncombe, 2; Burke, 90; Caldwell, 1; Camden, 5; Carteret, several; Caswell, several; Catawba, 15; Cherokee, 7; Craven, several; Dare, a few; Davidson, 5; Durham, a few; Edgecombe, a few; Forsyth, a few; Gaston, many; Granville, 2; Greene, 2; Guilford, 1; Harnett, 2; Jackson, several; Mecklenburg; Onslow; Richmond, 1; Robeson, 60; Rowan, a few; Surry, 20; Transylvania, in all parts; Union, a few; Watauga, 8; Wilkes, 10; Yadkin, a few—35 counties.

WHOOPING-COUGH.—Alamance, several; Alexander, 30; Alleghany, 1; Beaufort, several; Burke, a few; Cabarrus, 20; Caldwell, 40; Carteret, a few; Caswell, several; Catawba, 3; Clay, a few; Cleveland, a few; Cumberland; Currituck, a few; Davidson, 25; Duplin, 10; Durham, a few; Edgecombe, several; Forsyth, a few; Franklin, a few; Gaston, a few; Graham, several; Granville, 2; Greene, 10; Harnett, 23; Henderson, many; Iredell, several; Lee, 1; Lincoln, 4; Macon, 10; Mecklenburg; Mitchell, many; Onslow; Person, 5; Polk, 1; Randolph, a few; Richmond, 1; Robeson, 20; Scotland, many; Transylvania, a few; Tyrrell, a few; Union, a few; Vance, several; Washington, many; Watauga, 10; Wilkes, 5; Yancey, many—48 counties.

SCARLATINA.—Buncombe, 2; Chowan, 10; Cleveland, a few; Craven, 7; Davidson; Edgecombe, 2; Forsyth, 2; Gaston, many; Harnett, 1; Iredell, 2; Macon, 5; Mecklenburg; Rowan, 1; Union, a few; Washington, 4—14 counties.

DIPHTHERIA.—Alamance, 2; Bladen, 2; Buncombe, 3; Carteret, 2; Craven, 1; Cumberland, 3; Edegecombe, 1; Gates, 3; Guilford, 1; Harnett, 1; New Hanover, 2; Northampton, 1 or 2; Onslow, 2; Perquimans, 1; Pitt, 1—15 counties.

TYPHOID FEVER.—Alexander, 2; Ashe, 4; Beaufort, 4; Bladen, 2; Brunswick, 4; Caldwell, 2; Carteret, several; Caswell, 1; Cherokee, 2; Cumberland; Durham, 2 or 3; Edegecombe, a few; Forsyth, 2;

Gaston, 1; Guilford, 1; Iredell, 1; Jackson, 4; Johnston, 1; Macon, 1; Martin, 2; Mecklenburg; Mitchell, a few; Montgomery, a few; New Hanover, 1; Person, 2; Polk, 2; Randolph, 4; Richmond, 1; Robeson, 4; Rowan, 2; Rutherford, 2; Scotland; Watauga, 2; Yadkin, a few—34 counties.

Malarial Fever.—Currituck, Hyde, Lincoln, Martin, Montgomery, Perquimans.

Malarial Fever, Pernicious.—Hyde, a few; Martin, 3.

Malarial Fever, Hemorrhagic.—Martin, 1.

Bowel Diseases.—Currituck, Davidson, Edgecombe, Richmond.

Influenza.—Alamance; Alleghany; Caswell, in all parts; Currituck; Harnett; Northampton; Pender; Person; Randolph; Yadkin, in all parts; Yancey, in all parts—11 counties.

Pneumonia.—Alexander, 3; Alleghany, 3; Beaufort, several; Brunswick, 4; Buncombe, 1; Burke, 2; Cabarrus, 3; Caswell, several; Catawba, 2; Chowan, 2; Cleveland, many; Cumberland; Currituck, 10; Dare, a few; Davidson, 5; Duplin, 4; Edegcombe, several; Forsyth, several; Franklin; Gaston, 6; Granville, 4; Guilford; Harnett, 18; Henderson, 4; Hyde, a few; Iredell, several; Jackson, 5; Lee, 3; Macon, 4; Madison, 1; Martin, 1; Mecklenburg; Mitchell, a few; Nash; New Hanover, 3; Northampton; Onslow; Pender, 1; Person, 1; Polk, 1; Randolph, 4; Richmond, 2; Robeson, 50; Rowan, 1; Rutherford, 2; Sampson, a few; Surry, 4; Transylvania; Tyrrell, 2; Union, many; Washington, 5; Yadkin, 4; Yancey, 1—55 counties.

Meningitis, Cerebro-spinal.—Alamance, 2; Alleghany, 1; Gaston, 1; Gates, 1; Guilford, 1; Harnett, 1; Robeson, 1—7 counties.

Mumps.—Catawba, Gaston and Watauga.

Roseola.—Tyrrell.

Scabies.—Randolph.

Smallpox.—Bladen, 5; Buncombe, 1; Caldwell, 16; Camden, 15; Carteret, 1; Craven, 6; Duplin, 6; Johnston, 2; Lee, 6; Mitchell, several; Onslow, 2; Pasquotank, 14; Pitt, 2; Sampson, 5; Wake, 2; Wilson, 1; Yancey, 3—17 counties.

Hydrophobia, in Dogs.—Burke, 1; New Hanover, 2.

Spinal Meningitis, in Cattle.—Caldwell.

No diseases reported from Haywood, McDowell, Orange and Warren.

No reports received from Anson, Beaufort, Chatham, Columbus, Davie, Halifax, Hertford, Lenoir, Moore, Rockingham, Stanly, Swain and Wayne.

SUMMARY OF MORTUARY REPORTS FOR APRIL, 1909.

	White.	*Colored.*	*Total.*
Aggregate population	166,500	105,200	271,700
Aggregate deaths	134	173	307
Representing temporary annual death rate per 1,000	9.6	19.7	13.6
Causes of Death.			
Whooping-cough	2	1	3
Measles	1	3	4
Pneumonia	16	22	38
Consumption	22	33	55
Brain diseases	11	6	17
Heart diseases	11	15	26
Neurotic diseases	2	5	7
Diarrheal diseases	7	4	11
All other diseases	54	79	133
Accident	6	3	9
Suicide	2	1	3
Violence	0	1	1
	134	173	307
Deaths under 5 years	34	52	86
Stillborn	7	18	25

Mortuary Report for April, 1909.

Towns and Reporters.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence	Total. By Races.	Total. By Towns.	Deaths under five years.	Stillborn.
Asheville	W.	15,000	22,000	17.6	16.4	--	--	--	--	--	--	1	11	--	2	--	--	6	1	1	--	22	30	6	1
A. S. Halyburton, C.C.	C.	7,000		13.7		--	--	--	--	--	1	--	2	--	--	--	--	5	--	--	--	8		3	2
Charlotte	W.	18,000	30,000	8.7	15.2	--	--	--	--	--	1	1	1	--	--	--	--	10	--	--	--	13	38	5	1
Dr. F. O. Hawley.	C.	12,000		25.0		--	--	--	--	--	2	3	4	--	--	--	--	16	--	--	--	25		13	3
Durham	W.	12,000	18,000	8.0	16.7	--	--	--	--	--	--	1	1	--	1	--	--	4	1	--	--	8	25	--	1
Dr. T. A. Mann.	C.	6,000		34.0		--	--	--	--	--	--	1	2	--	1	--	--	12	--	1	--	17		--	2
Dunn	W.	2,000	2,500	6.0	9.6	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1	2	--	--
Dr. I. F. Hicks.	C.	500		24.0		--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1		--	--
Edenton	W.	3,000	6,000	8.0	6.0	--	--	--	--	--	--	--	--	1	--	--	--	1	--	--	--	2	3	--	--
Dr. H. M. S. Caton.	C.	3,000		4.0		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Elizabeth City	W.	6,000	10,000	6.0	15.6	--	--	--	--	--	--	--	--	--	1	--	--	2	--	--	--	3	13	1	1
Dr. C. B. Williams.	C.	4,000		30.0		--	--	--	--	1	--	2	2	--	--	--	--	5	--	--	--	10		5	--
Fayetteville	W.	5,000	8,500	16.8	16.9	--	--	--	--	--	--	--	1	2	1	--	1	2	--	--	--	7	12	3	--
Dr. A. S. Rose.	C.	3,500		17.1		--	--	--	--	--	--	1	1	1	2	--	--	--	--	--	--	5		--	--
Goldsboro	W.	6,000	10,000	6.0	6.0	--	--	--	--	--	--	--	--	1	--	--	1	1	--	--	--	3	5	2	--
Robt. A. Creech, Esq.	C.	4,000		6.0		--	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	2		2	--
Greensboro	W.	10,000	16,000	6.0	12.7	--	--	--	--	--	--	1	--	1	--	--	--	3	--	--	--	5	17	2	--
Dr. Edmund Harrison.	C.	6,000		24.0		--	--	--	--	--	--	1	1	--	2	--	--	8	--	--	--	12		3	--
High Point	W.	9,200	11,200	13.4	12.8	--	--	--	--	--	--	2	2	1	1	--	--	3	--	1	--	10	12	1	--
Dr. C. E. Reitzel.	C.	2,000		12.0		--	--	--	--	--	--	--	--	1	--	--	--	1	--	--	--	2		2	--
Lenoir	W.	3,000	4,000	8.0	6.0	--	--	--	--	--	--	--	1	--	--	1	--	--	--	--	--	2	2	--	--
Dr. W. P. Ivey.	C.	1,000		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Lexington	W.	3,000	3,600	4.0	3.3	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	1	--	--
Jno. H. Moyer, Mayor.	C.	600		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Marion	W.	1,500	1,600	8.0	7.5	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	1	1	--	--
Dr. M. L. Justice.	C.	100		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
New Bern	W.	7,500	15,000	4.8	12.8	--	--	--	--	--	1	--	--	--	--	--	--	2	--	--	--	3	16	--	--
Dr. Charles Duffy.	C.	7,500		20.8		--	--	--	--	--	--	4	1	1	3	2	--	2	--	--	--	13		6	1
Oxford	W.	2,000	4,000	12.0	12.0	--	--	--	--	--	--	1	--	--	--	--	--	--	1	--	--	2	4	--	--
Dr. S. D. Booth.	C.	2,000		12.0		--	--	--	--	--	--	--	1	--	1	--	--	--	--	--	--	2		--	--
Raleigh	W.	14,000	25,000	9.4	12.5	--	--	--	--	--	--	1	2	2	1	--	1	4	--	--	--	11	26	1	2
T. P. Sale, Esq.	C.	11,000		16.4		--	--	--	--	--	--	4	2	--	1	--	--	8	--	--	--	15		3	1
Reidsville	W.	4,000	6,000	6.0	12.0	--	--	--	--	--	--	1	--	--	1	--	--	--	--	--	--	2	6	--	--
J. F. Smith, City Clerk.	C.	2,000		24.0		--	--	--	--	--	--	--	1	--	--	--	--	3	--	--	--	4		--	--
Rocky Mount	W.	5,000	8,000	2.4	3.0	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1	2	--	--
Dr. I. P. Battle.	C.	3,000		4.0		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1		--	--
Salisbury	W.	7,400	11,000	13.0	14.2	--	--	--	--	--	--	2	--	1	--	--	2	3	--	--	--	8	13	1	--
Dr. H. T. Trantham.	C.	3,600		16.7		--	--	--	--	--	--	1	1	--	1	--	--	2	--	--	--	5		--	--
Salem	W.	3,000	3,400	8.0	17.6	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2	5	--	--
F. H. Vogler, Mayor.	C.	400		90.0		--	--	--	--	--	--	--	2	--	--	--	--	1	--	--	--	3		--	--
Southport	W.	1,000	1,600	12.0	15.0	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1	2	--	--
Dr. J. A. Dosher.	C.	600		20.0		--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1		--	--
Tarboro	W.	1,500	3,000	8.0	20.0	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1	5	--	--
Dr. W. J. Thigpen.	C.	1,500		32.0		--	--	--	--	--	--	--	1	--	1	--	--	1	--	--	1	4		1	--
Wilmington	W.	16,000	30,000	12.0	14.8	--	--	--	--	--	--	3	1	1	1	1	2	6	1	--	--	16	37	8	2
Dr. Charles T. Harper.	C.	14,000		18.0		--	--	--	--	--	--	3	3	1	1	3	4	5	1	--	--	21		11	8
Wilson	W.	3,800	6,800	9.5	10.6	--	--	--	--	2	--	--	--	--	1	--	--	--	--	--	--	3	6	2	--
Dr. W. S. Anderson.	C.	3,000		12.0		--	--	--	--	--	--	--	--	1	--	--	--	2	--	--	--	3		1	--
Winston	W.	7,600	14,500	9.5	20.5	--	--	--	--	--	--	--	--	--	1	--	--	3	2	--	--	6	24	2	--
Dr. E. A. Lockett	C.	6,900		31.3		--	--	--	--	--	--	1	8	--	2	--	--	6	1	--	--	18		2	--

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance.....Dr. H. M. Montgomery.
Alexander.....Dr. O. L. Hollar.
Alleghany.....Dr. Robert Thompson.
Anson.....Dr. E. S. Ashe.
Ashe.....Dr. J. T. Testerman.
Beaufort.....Dr. D. T. Tayloe.
Bertie.....Dr. John L. Pritchard.
Bladen.....Dr. L. B. Evans.
Brunswick.....Dr. J. Arthur Dosher.
Buncombe.....Dr. D. L. Laxton.
Burke.....Dr. J. R. Anderson.
Cabarrus.....Dr. R. S. Young.
Caldwell.....Dr. C. L. Wilson.
Camden.....Dr. C. G. Ferebee.
Carteret.....Dr. W. E. Headen.
Caswell.....Dr. S. A. Malloy.
Catawba.....Dr. Geo. H. West.
Chatham.....Dr. J. H. Taylor.
Cherokee.....Dr. S. C. Heighway.
Chowan.....Dr. H. M. S. Cason.
Clay.....Dr. P. B. Killian.
Cleveland.....Dr. T. E. McBrayer.
Columbus.....Dr. H. B. Maxwell.
Craven.....Dr. Joseph F. Rhem.
Cumberland.....Dr. A. S. Rose.
Currituck.....Dr. H. M. Shaw.
Dare.....Dr. S. C. Heighway.
Davidson.....Dr. Joel Hill.
Davie.....Dr. M. D. Kimbrough.
Duplin.....Dr. John A. Ferrell.
Durham.....Dr. N. M. Johnson.
Edgecombe.....Dr. W. J. Thigpen.
Forsyth.....Dr. S. F. Pfohl.
Franklin.....Dr. R. F. Yarborough.
Gaston.....Dr L. N. Glenn.
Gates.....Dr. Geo. D. Williams.
Graham.....Dr. M. T. Maxwell.
Granville.....Dr. S. D. Booth.
Greene.....Dr. W. B. Murphy.
Guilford.....Dr. Edmund Harrison.
Halifax.....Dr. I. E. Green.
Harnett.....Dr. J. W. Halford.
Haywood.....Dr. J. R. McCracken.
Henderson.....Dr. J. G. Waldrop.
Hertford.....Dr. J. H. Mitchell.
Hyde.....Dr. R. E. Windley.
Iredell.....Dr. M. R. Adams.
Jackson.....Dr. A. S. Nichols.
Johnston.....Dr. L. D. Wharton.
Jones.....Dr. H. G. Monk.
Lee.....Dr. J. P. Monroe.
Lenoir.....Dr. C. L. Pridgen.
Lincoln.....Dr. J. W. Saine.
McDowell.....Dr. M. L. Justice.
Macon.....Dr. S. H. Lyle.
Madison.....Dr. W. J. Weaver.
Martin.....Dr. W. E. Warren.
Mecklenburg.....Dr. C. S. McLaughlin.
Mitchell.....Dr. Virgil R. Butt.
Montgomery.....Dr. J. B. Shamburger.
Moore.....Dr. Gilbert McLeod.
Nash.....Dr. I. P. Battle.
New Hanover.....Dr. W. D. McMillan.
Northampton.....Dr. H. W. Lewis.
Onslow.....Dr. Cyrus Thompson.
Orange.....Dr. C. D. Jones.
Pamlico.....
Pasquotank.....Dr. J. B. Griggs.
Pender.....Dr. Robt. H. Bradford.
Perquimans.....Dr. T. P. McMullen.
Person.....Dr W. A. Bradsher.
Pitt.....Dr. Joseph E. Nobles.
Polk.....Dr. Earle Grady.
Randolph.....Dr. S. A. Henley.
Richmond.....Dr. N. C. Hunter.
Robeson.....Dr. H. T. Pope.
Rockingham.....Dr. Sam Ellington.
Rowan.....Dr. I. H. Foust.
Rutherford.....Dr. E. B. Harris.
Sampson.....Dr. Frank H. Holmes.
Scotland.....Dr. K. A. Blue.
Stanly.....Dr. J. N. Anderson.
Stokes.....
Surry.....Dr. John R. Woltz.
Swain.....Dr. J. A. Cooper.
Transylvania.....Dr. Goode Cheatham.
Tyrrell.....Dr. W. W. Stancell.
Union.....Dr. Henry D. Stewart.
Vance.....Dr. John Hill Tucker.
Wake.....Dr. J. W. McGee, Jr.
Warren.....Dr. M. P. Perry.
Washington.....Dr. W. H. Ward.
Watauga.....Dr. J. M. Hodges.
Wayne.....Dr. T. L. Ginn.
Wilkes.....Dr. John Q. Myers.
Wilson.....Dr. W. S. Anderson.
Yadkin.....Dr. S. L. Russell.
Yancey.....Dr. W. B. Robertson.

Mitchell Sci Society

BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.
Entered as second-class matter at Post Office at Raleigh, N. C., under Act March 3, 1879.

G. G. THOMAS, M. D., *Pres.*, Wilmington.
THOMAS E. ANDERSON, M. D., Statesville.
J. HOWELL WAY, M. D., Waynesville.
W. O. SPENCER, M. D., Winston-Salem.
EDW. C. REGISTER, M. D., Charlotte.
DAVID T. TAYLOE, M. D., Washington.
J. A. BURROUGHS, M. D., Asheville.
J. L. LUDLOW, C. E., Winston-Salem.
RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XXIV. JUNE, 1909. No. 3.

HAIL AND FAREWELL.

With this issue the writer retires as secretary and treasurer of the State Board of Health and as editor of the BULLETIN, after a service of nearly seventeen years. No one realizes more clearly than himself his shortcomings in both capacities and the inadequacy of his efforts, but in justice it should be said that the time available from an active and busy professional life for the public health work has necessarily been limited. He is gratified, however, by the kind assurances he has received from those competent to judge that during his incumbency material advance has been made in sanitation in our State, and that a strong public sentiment favorable to the cause of the public health has been built up.

A thoroughly equipped and ably manned laboratory of hygiene has been established on a solid basis. The laws relating to the public health have been greatly amplified and improved, and will now compare favorably with those of the States most advanced in preventive medicine.

In helping to bring about the amendment of the health laws increasing the annual appropriation two hundred per cent. still inadequate, but sufficient to justify and permit the employment of all the time of a competent secretary, and in finding and securing on his nomination the unanimous election by the Board of Health of such a man, the outgoing secretary feels that in this, his last, he has done his best work for the cause of the public health.

While it is with a natural feeling of regret that he gives up the active work in so great a cause in which he has been engaged for many years, he believes, as he has said elsewhere, that it is best for the work's sake as well as for his own. As long as life lasts he will continue to take a deep interest in, and to aid in every way he can, the noble work of promoting the public health, averting sickness and saving life.

It is with great pleasure that we introduce and commend to the people of North Carolina and to the medical profession in particular, who must be his supporters and co-workers, WATSON S. RANKIN, M. D., who, on July 1st, assumes the duties and responsibilities of secretary and treasurer of the State Board of Health and Registrar of Vital Statistics.

Although just thirty years of age, Dr. Rankin has already "made good," and with his natural ability, good training, energy, enthusiasm and an ambition to accomplish results he will, we feel sure, in the coming years do great things for our people. Hold up his hands.

REPORT OF THE SECRETARY, MAY 20, 1908, JUNE 11, 1909.

Your secretary, in this, his last report, is much gratified at being able to say that his last year of service has witnessed the greatest advance of the cause of preventive medicine in our State, in a like period of time, since the establishment of the State Board of Health. For several years he has realized that, owing to the exactions of his private professional work, the time he could give to the work of the board was entirely inadequate. He believed also, that, owing to the very small salary allowed the secretary, on account of the meager appropriation, no one else could be expected to give more attention to it and make a proper living, and so he waited before taking action until, in his judgment, the outlook was favorable for an attempt at a forward movement. Upon the assembling of the last Legislature the conditions, in his opinion, justified making a trial for better things. Consequently, having found a man whom he believed to be well qualified for the position and having obtained from him a positive promise to accept an election, if tendered him by the board, your secretary prepared a bill, while incidentally legislating himself out of office, as he could not afford to abandon his private practice, that would provide the means for work far in advance of anything heretofore attempted for the public health. The essential feature of the bill was an increase of the annual appropriation from two to ten thousand dollars, authorizing the payment to the secretary of a salary of three thousand dollars a year and requiring him to give his entire time to public health work. While the Legislature cut down the appropria-

tion asked for to six thousand dollars, it still left an increase of 200 per cent and a sum sufficient to secure all the time of a competent secretary, the one thing absolutely essential to any marked progress.

As you already know, the present incumbent, at a call meeting on March 30th last, tendered his resignation, which was accepted, to take effect July 1st, and Dr. Watson S. Rankin, Dean of the Medical School at Wake Forest College, was unanimously elected as his successor.

The public health laws were also materially and advantageously amended in many other respects, particularly those sections relating to the control of public water supplies by the Board of Health, in the preparation of which latter amendments invaluable aid was rendered by the engineer of the board, Col. J. L. Ludlow.

Section 3057 of the Revisal of 1905, relating to the State Laboratory of Hygiene, was amended by specifically requiring analyses of drinking waters sold in bottles or other packages and imposing upon those selling them an annual tax, graduated in proportion to the gross receipts from sales. While the original act imposed an annual tax of $64 upon all individuals, firms and corporations selling water to the people, it was found, upon investigation, that in many instances this was out of proportion to the business done, and it was deemed both right and wise to make the tax equitable and at the same time to make it perfectly clear that bottled waters came within the law. The necessity for analysis of this class of waters was startlingly shown by analyses your secretary had made in the laboratory in the general cause of the public health and for the purpose of supplying ammunition with which to meet an attack upon the law, threatened by the president of one of the companies selling a water of this class. Of sixty-one samples from twenty-nine springs thirty-two were found to be infected with colon bacilli. Although the gentleman referred to passed away before the General Assembly met, the information thus obtained was of service in securing the desired legislation. The section was further amended so as to require analyses of the waters of springs "maintained and treated as an adjunct to any hotel, park or resort for the accommodation or entertainment of the public," and an annual tax of $15 was imposed upon all such sources of water supply, with an additional tax on all waters sold therefrom in bottles, in accordance with the schedule referred to above.

Probably the weakest spot in our sanitary legislation has been the lack of reliable vital statistics. The only statistics we have had heretofore have been those collected by some twenty-odd cities and towns in various and manifestly, in some instances, very imperfect ways, and incomplete and inaccurate vital statistics are practically worthless. A model vital statistics bill for States was sent us by both the Bureau of the Census and by the American Medical Association. Theoretically, it was an excellent bill, and for densely populated, highly organized communities doubtless practicable, but for

our State, with its large, widely scattered rural population, and one-third of that negroes, it would have been little short of absurd. After a very careful consideration of the subject it was decided that any attempt at the collection of reliable vital statistics holding out the least hope of success, for the present at least, would have to be limited to incorporated towns. So, desiring that our statistics might fit in with those of the United States Census Bureau, a request was made of Dr. Cressy L. Wilbur, Chief Statistician, to have prepared for us a bill applying only to cities and towns of one thousand population and over. Taking the bill he kindly and promptly sent as a basis, it was modified to fit our conditions. After its passage in its completed state it was very gratifying to learn from Dr. Wilbur that it was the first practical vital statistics law to be enacted in the South, and, moreover, that it contained a provision for the enforcement, new to him and in his opinion valuable. This provision was placing the responsibility for carrying out the law solely upon the mayor, and making him liable to a fine of not less than $10 for failure of duty in this respect; and at the same time making it mandatory upon the solicitor to institute a criminal action for its collection, upon complaint of the State Registrar or Secretary of the State Board of Health. It really looks now as if vital statistics of real value, though necessarily partial, were in sight.

The high price of diphtheria antitoxin being prohibitory to the poor, the propriety of making provision for its supply free to indigent cases of the disease should not be questioned by any humane person. The suggestion of the advisability of such legislation came from Dr. B. E. Reeves, of Alleghany County, in a letter, accompanied by a tentative bill, to Senator R. L. Doughton, of the same county. The suggestion was cordially received, and at his request Dr. Reeves's bill was modified and amplified into the law as we now have it.

Another forward step was the increase in the annual appropriation for the support of the State Sanatorium for Tuberculosis, from $5,000 to $7,500, and the appropriation of $30,000 for improvements. This institution, which is ideally located, was opened for patients in November last, and promises to be of much value in the campaign against tuberculosis.

The most gratifying and encouraging thing in connection with the health legislation by the late General Assembly is that, with the exception of the cutting down of the appropriation of ten thousand dollars asked for to six and an immaterial amendment to the bill relating to the Laboratory of Hygiene, requiring reciprocity in the matter of analyses of bottled waters with other States having similar laboratories and requirements, all the bills relating to the public health in any way were passed without amendment and without a single vote in the negative. This signifies a remarkable growth in favorable public opinion and justifies the hope of more rapid progress in the near future.

As this report is made to the conjoint session of the Board of Health with the Medical Society, and as nothing is of more importance to the public health than well-qualified physicians, reference to the strictly medical legislation is in order.

A bill, prepared by the Board of Medical Examiners, the essential feature of which was the requirement of a preliminary education equal to graduation from a high school of all applicants for license, was introduced in the House by one of its most influential members. The requirement was certainly a most reasonable one, and, as a matter of fact, of special value to the prospective student of medicine, but it was bitterly fought with the usual demagogic arguments of "Medical Trust," "poor boy," and, after three hot contests, was finally defeated by one majority.

The amendment to the license law, authorizing the Board of Medical Examiners, in its discretion, to modify the requirements of the law and to grant a limited license, when the conditions in the neighborhood from which the applicant came demanded it, met with no opposition. Special acts licensing certain physicians had been introduced and the indications were that they would be passed. To prevent this kind of legislation, which would mean in the end the practical destruction of our license law, this amendment was suggested as a compromise and accepted by the introducers of the bills. This action on the part of those having the matter in charge has been criticised in some quarters, but it should be said that a copy of the amendment was sent to every member of the Committee on Legislation and of the Board of Medical Examiners and was approved or assented to by all, with the exception of a single member of the Board of Medical Examiners. Those on the ground and familiar with the conditions as they actually existed in the Legislature felt no doubt whatever as to its wisdom.

Before leaving the subject of legislation acknowledgment should be made of the valuable assistance rendered by Dr. Albert Anderson of the committee.

After nearly seventeen years of active and loving service your secretary lays down the work with regret, although he realizes that it is best for the work's sake as well as for his own. He is conscious of many things left undone that ought to have been done, and perhaps some things have been done that ought not to have been done, but he has tried to be of some service to the State.

In conclusion, he wishes to express his deep and heartfelt appreciation of the unfailing and unvarying kindness and courtesy he has received at your hands, and to most cordially commend to you his successor, Dr. Rankin. Dr. Rankin he believes to be a man of character, ability, energy, enthusiasm and possessed of the altruistic spirit so helpful in work of this kind. If the profession in the State

will hold up his hands and give him their cordial support and co-operation he will do great things in the coming years for North Carolina.

The Laboratory of Hygiene is proving of greater and greater value to the people and to the medical profession as time passes. The profession is showing increasing interest and appreciation and seems to be well satisfied with the work done therein, and not a word of criticism of either methods or results has come to the office of the secretary.

The amount of work accomplished by Dr. Shore, the director, and his two assistants, Miss Allen, Chemist, and Mr. Kellogg, Biologist, when compared with that of some other laboratories, is, to say the least, unusual. A perusal of the report of the director, which is appended hereto, will show this. Twenty-three hundred and ninety-two examinations of specimens of various kinds and the administration of the Pasteur treatment to eighty-three patients in addition, in one year, by so small a force, is most gratifying. This could not have been done but for the kindness of the United States Hygienic Laboratory in furnishing us the virus free of charge. Not a case has died, and our records, so far, could not be bettered.

In January last the Laboratory was moved to very commodious quarters; it has been thoroughly furnished with the most approved apparatus and manned by a force as good as any, and we can confidently expect its increasing usefulness.

The following is the report of examinations made in the State Laboratory of Hygiene from May 20, 1908, to May 20, 1909:

		Positive.	*Negative.*
143	Examinations of feces—		
	Hookworm	65	50
	Oxyuris vermicularis	1	..
	Ascaris lumbricoides	2	..
	Amœba coli	2	1
	Fly larvæ	3	..
	Tænia saginata	1	..
	Tubercle bacilli	2	9
	Blood	4	2
	Cancer cells	..	1
277	Examinations of sputum for tubercle bacilli.	108	169
271	Examinations for diphtheria bacilli	169	102
43	Examinations for malaria	9	34
135	Examinations for Widal reaction	56	79
18	Examinations for gonococci	7	11
65	Examinations of brains for rabies	47	18
2	Examinations, bacterial, of pus.		
6	Differential leucocyte counts.		
122	Specimens of urine, with a variety of bacterial and chemical determinations.		

74 Examinations of pathological tissue, as follows:

Carcinoma	15
Chronic inflammation	19
Benign hypertrophies	14
Sarcoma	6
Chondroma	1
Colloid goitre	2
Tuberculosis	10
Pyæmia	2
Verruca	1
Necrosis	1
Doubtful (tissue not well preserved)	1
Placenta	2

2 Examinations of gastric fluid.
1,234 Examinations of water.

2,392

Eighty-three patients received Pasteur treatment at this laboratory. Of these, 65 were bitten by dogs in which the disease was demonstrated either by microscopic examination, inoculation experiments in laboratory or by subsequent death of other animals from a bite; in 17 cases only a clinical history of rabies in the attacking animal was obtained; in 1 the history was found to be erroneous and treatment was discontinued; 13 of these cases paid for treatment and the remaining 70 were given free treatment.

SMALLPOX REPORT.

Counties.	Number of Cases.			Number of Deaths.		
	White.	Colored.	Total.	White.	Colored.	Total.
Anson	6	10	16			
Ashe	15		15			
Bertie	1	5	6		1	1
Bladen		7	7			
Buncombe		1	1			
Cabarrus	1		1			
Caldwell	106		106			
Camden	15	80	95			
Carteret	1		1			
Catawba	3		3			
Cherokee	1		1			
Chowan	12	12	24			
Craven	2	14	16			
Currituck	85	60	145	1		1
Duplin	25	110	135	1		1
Edgecombe		1	1			
Forsyth	23	14	37			
Guilford		1	1			
Harnett	16	7	23			
Johnston	44	41	85			
Jones	40	6	46			
Lee	13	31	44			
McDowell		5	5		1	1
Madison	5		5			
Mitchell	16	9	25			
Nash	8	5	13			
New Hanover	5	2	7			
Onslow		9	9			
Pasquotank	65	40	105			
Perquimans		28	28			
Pitt		3	3			
Polk		3	3			
Richmond		2	2			
Rowan		3	3			
Rutherford	17		17			
Sampson	9	28	37			
Scotland	24	2	26			
Wake		2	2			
Warren		8	8			
Watauga	15		15	1		1
Wilson		1	1			
Yancey	1	3	4			
Total in 42 counties	574	553	1,127	3	2	5
Death rate per cent				.05	.03	.04

REVIEW OF DISEASES FOR MAY, 1909.

EIGHTY-ONE COUNTIES REPORTING.

Ninety-six out of ninety-eight counties have superintendents of health.

Except in the case of the more contagious and dangerous diseases, the superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of May the following diseases have been reported from the counties named:

MEASLES.—Alamance, several cases; Burke, 80; Carteret; Caswell, several; Catawba, a few; Chatham, 6; Craven, many; Davidson, 10; Duplin, 8; Durham, a few; Forsyth, several; Greene, 12; Guilford, 1; Harnett, several; Macon, 5; Mecklenburg; Onslow, 1; Pamlico, 20; Randolph, a few; Robeson, epidemic; Wake, 4; Wilkes, several; Yadkin—23 counties.

WHOOPING COUGH.—Alamance, a few; Bertie, several; Bladen, many; Caldwell, 15; Caswell, several; Catawba, many; Cleveland, a few; Cumberland, several; Davidson, 150; Davie, a few; Edgecombe, 4; Forsyth, a few; Franklin, many; Granville, 30; Haywood, a few; Iredell, many; Jackson, 5; Lee, 3; Lenoir, 10; Lincoln, 10; Macon, epidemic; Mecklenburg; Mitchell, several; Pamlico, 30; Randolph, a few; Robeson, a few; Rowan, several; Transylvania, a few; Union, many; Vance, several; Wake, 16; Wayne, a few; Wilkes, a few; Yancey, 9—34 counties.

SCARLATINA.—Cabarrus, 2; Caldwell, 2; Chatham, 6; Chowan, 1; Cleveland, a few; Davidson, 1; McDowell, 2; Macon, 2; Mecklenburg; Nash, 2; Orange, 3; Pasquotank, 1; Rowan, 1; Wake, 4; Washington, 8—15 counties.

DIPHTHERIA.—Alamance, 1; Cherokee, 1; Chowan, 1; Craven, 1; Cumberland, 2; Duplin, 3; Edgecombe, 4; Gates, 2; Guilford, 1; Lenoir, 3; Madison, 1; Onslow, 3; Pasquotank, 1; Pender, 1; Perquimans, 1; Washington—16 counties.

TYPHOID FEVER.—Alamance, 2; Alexander, 7; Ashe, 4; Beaufort, 3; Bertie, 4; Bladen, a few; Brunswick, 2; Cabarrus, 1; Caldwell, 5; Camden, 5; Caswell, 1; Catawba, a few; Chatham, 2; Cleveland, several; Craven, 5; Cumberland, a few; Davie, a few; Duplin, 10; Durham, 2 or 3; Franklin, a few; Gates, 1; Graham, 1; Granville, 1; Guilford, 5; Harnett, several; Henderson, 1; Jackson, 3; Lee, 3; Le-

noir, 5; McDowell, 1; Macon, 3; Mecklenburg; Mitchell, a few; Montgomery, 2; New Hanover, 7; Onslow, 1; Orange, 2; Pamlico, 2; Perquimans, 1; Person, 1; Randolph, a few; Robeson, a few; Rowan, 2; Sampson, 3; Scotland, 6; Tyrrell, 1; Union, 2; Wake, 9; Washington, 2; Watauga, 10; Wilkes, 2; Yadkin, a few; Yancey, 1—53 counties.

Malarial Fever.—Cabarrus; Caswell, in all parts; Currituck, a few; Hyde; Onslow; Pamlico; Perquimans, in all parts; Pitt; Union—9 counties.

Malarial Fever, Pernicious.—Hyde, 4; Pitt, 1.

Malarial Fever, Hemorrhagic.—Bertie, 1; Pamlico, 1.

Bowel Diseases.—Alamance, in all parts; Alleghany; Ashe, in all parts; Cabarrus, a few; Caldwell; Currituck, a few; Davie, in all parts; Graham, in all parts; Guilford, in all parts; Haywood, in all parts; Macon, in all parts; Onslow; Pender, in all parts; Perquimans, in all parts; Person; Randolph, in nearly all parts; Robeson, in all parts; Transylvania, in all parts; Wilkes, in all parts—19 counties.

Influenza.—Montgomery, in all parts; Randolph, in all parts.

Pneumonia.—Ashe, 3; Bertie, 2; Bladen, 1; Caldwell, 3; Catawba, a few; Chatham, 1; Cleveland, a few; Davidson, 2; Davie, a few; Duplin, 1; Durham, a few; Forsyth, a few; Gates, 1; Harnett, several; Henderson, 1; Jackson, 6; Lee, 1; Lenoir, 2; McDowell, 1; Mecklenburg; Mitchell, several; Montgomery, 5; New Hanover, 3; Pamlico, 2; Pender, 1; Perquimans, 1; Pitt; Randolph, several; Robeson, several; Rowan, several; Wake, 6; Washington, 1; Wilkes, 2; Yadkin, 2—35 counties.

Meningitis, Cerebro-Spinal.—Alamance, a good many; Gates, 2; Jackson, 1; Montgomery, 1.

Mumps.—Cabarrus; Cumberland; Edgecombe, in all parts; Onslow.

Smallpox.—Caldwell, 2; Camden, 30; Craven, 1; Cumberland, 1; Duplin, 10; Madison, 1; Mecklenburg, 2; Pamlico, 4; Pasquotank, 1; Pitt, 7; Rowan, 9; Sampson, 42 in extreme northern part; Transylvania, 5; Wayne, 14; Yancey, 5—15 counties.

Cholera, in Hogs.—Beaufort.

No diseases reported from Buncombe, Hertford, Martin, Polk, Rutherford, Warren and Wilson.

No reports received from Anson, Clay, Columbus, Gaston, Halifax, Johnston, Jones, Moore, Northampton, Person, Richmond, Rockingham, Stanly, Surry and Swain.

SUMMARY OF MORTUARY REPORTS FOR MAY, 1909.

	White.	*Colored.*	*Total.*
Aggregate population	156,700	96,300	253,000
Aggregate deaths	174	182	356
Representing temporary annual dath rate per 1,000	13.3	23.7	16.9
Causes of Death.			
Malarial fever	1	3	4
Diphtheria	2	0	2
Whooping Cough	2	3	5
Measles	4	4	8
Pneumonia	9	13	22
Consumption	21	29	50
Brain diseases	8	12	20
Heart diseases	14	13	27
Neurotic diseases	0	3	3
Diarrheal diseases	29	29	58
All other diseases	76	72	148
Accident	5	0	5
Suicide	2	0	2
Violence	1	1	2
	174	182	356
Deaths under five years	47	55	102
Stillborn	21	32	53

Mortuary Report for May, 1909.

Towns and Reporters.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total By Races.	Total By Towns.	Deaths. Deaths under five years.	Stillborn.
Asheville	W.	15,000	22,000	16.8	18.5	--	--	--	--	1	--	--	8	1	--	--	1	8	--	1	1	21	34	4	2
A. S. Halyburton, C.C.	C.	7,000		22.3		--	--	--	--	--	--	3	2	--	1	--	6	1	--	--	--	13		7	1
Charlotte	W.	18,000	30,000	13.3	18.4	--	--	--	--	--	2	--	1	--	--	--	2	15	--	--	--	20	46	9	3
Dr. F. O. Hawley.	C.	12,000		26.0		--	--	1	--	--	3	--	1	--	--	--	2	19	--	--	--	26		6	2
Durham	W.	12,000	18,000	15.0	24.0	--	--	--	2	--	2	--	1	--	2	--	--	8	--	--	--	15	36	--	1
Dr. T. A. Mann.	C.	6,000		42.0		--	--	--	--	1	--	2	4	1	2	--	--	10	1	--	--	21		--	5
Dunn	W.	2,000	2,500	12.0	14.4	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	--	2	3	2	2
Dr. I. F. Hicks.	C.	500		24.0		--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1		1	--
Edenton	W.	3,000	6,000	0.0	6.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	3	--	--
Dr. H. M. S. Cason.	C.	3,000		12.0		--	--	--	--	--	--	--	--	--	--	--	3	--	--	--	--	3		--	--
Elizabeth City	W.	6,000	10,000	4.0	9.6	--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	2	8	1	--
Dr. C. B. Williams.	C.	4,000		18.0		--	--	--	--	--	--	1	--	1	--	--	2	2	--	--	--	6		2	2
Fayetteville	W.	5,000	8,500	0.0	5.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	4	--	--
Dr. W. S. Jordan.	C.	3,500		13.7		--	--	--	--	--	--	--	--	1	--	--	1	2	--	--	--	4		--	--
Goldsboro	W.	6,000	10,000	10.0	16.8	--	--	--	--	--	--	--	1	--	--	--	2	1	--	1	--	5	14	1	2
Robt. A. Creech, Esq.	C.	4,000		27.0		--	--	1	--	--	--	--	2	--	--	--	4	2	--	--	--	9		7	1
Greensboro	W.	10,000	16,000	24.0	25.5	--	--	--	--	1	--	2	1	1	--	--	3	12	--	--	--	20	34	11	--
Dr. Edmund Harrison.	C.	6,000		28.0		--	--	--	--	--	--	--	3	1	2	--	1	5	2	--	--	14		4	3
High Point	W.	9,200	11,200	11.7	13.9	--	--	--	--	--	--	--	--	--	--	--	5	4	--	--	--	9	13	5	2
Dr. C. E. Reitzel.	C.	2,000		24.0		--	--	--	--	1	--	1	1	--	--	--	--	1	--	--	--	4		2	--
Marion	W.	1,500	1,600	16.0	22.4	--	--	--	--	--	--	--	1	--	--	--	1	--	--	--	--	2	3	--	--
Dr. Guy S. Kirby.	C.	100		120.0		--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	1		--	--
Oxford	W.	2,000	4,000	12.0	12.0	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	--	2	4	2	--
Dr. S. D. Booth.	C.	2,000		12.0		--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	2		1	--
Raleigh	W.	14,000	25,000	19.7	21.6	--	--	--	--	--	--	2	1	1	3	--	5	11	--	--	--	23	45	6	2
F. F. Brown, Clerk B.H.	C.	11,000		24.0		--	--	--	--	1	1	4	3	1	3	--	3	6	--	--	--	22		8	1
Reidsville	W.	4,000	6,000	21.0	16.0	--	--	--	--	--	--	--	2	2	--	--	--	3	--	--	--	7	8	--	--
J. F. Smith, City Clerk.	C.	2,000		6.0		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Rocky Mount	W.	5,000	8,000	14.4	19.5	--	--	--	--	--	--	1	1	--	1	--	2	1	--	--	--	6	13	1	--
Dr. I. P. Battle.	C.	3,000		28.0		--	--	--	--	--	--	--	2	--	1	--	1	3	--	--	--	7		1	1
Salem	W.	3,000	3,400	4.0	10.6	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	3	--	--
F. H. Vogler, Mayor.	C.	400		60.0		--	--	--	--	--	--	--	--	1	--	--	--	1	--	--	--	2		--	--
Salisbury	W.	7,400	11,000	14.6	14.2	--	--	--	--	--	--	--	2	--	1	--	3	3	--	--	--	9	13	--	--
Dr. H. P. Trantham.	C.	3,600		13.3		--	--	--	--	--	--	1	--	1	--	--	--	1	1	--	--	4		--	--
Southport	W.	1,000	1,600	0.0	7.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	1	--	--
Dr. J. A. Dosher.	C.	600		20.0		--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1		--	--
Weldon	W.	800	1,400	0.0	17.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	2	--	--
W. W. Wiggins, Mayor.	C.	600		40.0		--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	2		--	--
Wilmington	W.	16,000	30,000	9.7	15.2	--	--	--	--	--	--	2	--	1	5	--	2	3	--	--	--	13	38	2	1
Jos. Akerman.	C.	14,000		21.4		--	--	--	--	--	--	1	2	5	2	2	2	10	1	--	--	25		8	11
Wilson	W.	3,800	6,800	18.9	24.7	--	--	1	--	--	--	1	--	1	2	--	--	1	--	--	--	6	14	1	--
Dr. W. S. Anderson.	C.	3,000		32.0		--	--	1	--	--	--	--	1	--	--	--	1	5	--	--	--	8		5	--
Winston	W.	12,000	20,000	6.0	10.2	--	--	--	--	--	--	--	1	1	--	--	--	4	--	--	--	6	17	2	6
Dr. W. N. Dalton.	C.	8,000		16.4		--	--	--	--	--	--	--	6	--	--	1	2	1	--	--	1	11		3	5

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance.....Dr. H. M. Montgomery.
Alexander.....Dr. B. O. Choate.
Alleghany.....Dr. Robert Thompson.
Anson.....Dr. E. S. Ashe.
Ashe.....Dr. J. C. Testerman.
Beaufort.....Dr. P. A. Nicholson.
Bertie.....Dr. John L. Pritchard.
Bladen.....Dr. L. B. Evans.
Brunswick.....Dr. J. Arthur Dosher.
Buncombe.....Dr. D. E. Sevier.
Burke.....Dr. J. R. Anderson.
Cabarrus.....Dr. J. M. Wallace.
Caldwell.....Dr. C. L. Wilson.
Camden.....Dr. C. G. Ferebee.
Carteret.....Dr. W. E. Headen.
Caswell.....Dr. S. A. Malloy.
Catawba.....Dr. T. C. Blackburn.
Chatham.....Dr. L. E. Farthing.
Cherokee.....Dr. J. F. Abernethy.
Chowan.....Dr. H. M. S. Cason.
Clay.....Dr. J. M. Sullivan.
Cleveland.....Dr. T. E. McBrayer.
Columbus.....Dr. H. B. Maxwell.
Craven.....Dr. Joseph F. Rhem.
Cumberland.....Dr. A. S. Rose.
Currituck.....Dr. H M. Shaw.
Dare.....
Davidson.....Dr. E. J. Buchanan.
Davie.....Dr. M D. Kimbrough.
Duplin.....Dr. John A. Ferrell.
Durham.....Dr. N. M. Johnson.
Edgecombe.....Dr. Spencer P. Bassy.
Forsyth.....Dr. J. K. Pepper.
Franklin.....Dr. R. F. Yarborough.
Gaston.....Dr L. N. Glenn.
Gates.....Dr. Geo. D. Williams.
Graham.....Dr. M. T. Maxwell.
Granville.....Dr. S. D. Booth.
Greene.....Dr. W. B. Murphy.
Guilford.....Dr. Edmund Harrison.
Halifax.....Dr. I. E. Green.
Harnett.....Dr. L. J. Arnold.
Haywood.....Dr. J. R. McCracken.
Henderson.....Dr. J. G. Waldrop.
Hertford.....Dr. J. H. Mitchell.
Hyde.....Dr. R. E. Windley.
Iredell.....Dr. M. R. Adams.
Jackson.....Dr. A. S. Nichols.
Johnston.....Dr. L. D. Wharton.
Jones.....
Lee.....Dr. J. P. Monroe.
Lenoir.....Dr. N. A. Whitaker.
Lincoln.....Dr. J. W. Saine.
McDowell.....Dr. Geo. S. Kirby.
Macon.....Dr. S. H. Lyle.
Madison.....Dr. W. J. Weaver.
Martin.....Dr. W. E. Warren.
Mecklenburg.....Dr. C. S. McLaughlin.
Mitchell.....Dr. Virgil R. Butt.
Montgomery.....Dr. C. Deligney.
Moore.....Dr. Gilbert McLeod.
Nash.....Dr. J. P. Battle.
New Hanover.....Dr. W. D. McMillan.
Northampton.....Dr. H. W. Lewis.
Onslow.....Dr. Cyrus Thompson.
Orange.....Dr. C. D. Jones.
Pamlico.....Dr. Daniel A. Dees.
Pasquotank.....Dr. H. T. Aydlett.
Pender.....Dr. Robt. H. Bradford.
Perquimans.....Dr. T. P. McMullen.
Person.....Dr. W. T. Long.
Pitt.....Dr. W. M. Fountain.
Polk.....Dr. W. R. Engel.
Randolph.....Dr. J. V. Hunter.
Richmond.....Dr. N. C. Hunter.
Robeson.....Dr. H. T. Pope.
Rockingham.....Dr. Sam Ellington.
Rowan.....Dr. M. L. Smoot.
Rutherford.....Dr. E. B. Harris.
Sampson.....Dr. A. M. Cooper.
Scotland.....Dr. K. A. Blue.
Stanly.....Dr. J. N. Anderson.
Stokes.....
Surry.....Dr. John R. Woltz.
Swain.....Dr. J. A. Cooper.
Transylvania.....Dr. Goode Cheatham.
Tyrrell.....Dr. J. L. Spruill.
Union.....Dr. Henry D. Stewart.
Vance.....Dr. E. F. Fenner.
Wake.....Dr. J. J. L. McCullers.
Warren.....Dr. M. P. Perry.
Washington.....Dr. W. H. Ward.
Watauga.....Dr. J. M. Hodges.
Wayne.....Dr. T. M. Bizzell.
Wilkes.....Dr. John Q. Myers.
Wilson.....Dr. W. S. Anderson.
Yadkin.....Dr. S. L. Russell.
Yancey.....Dr. W. B. Robertson.

Mitchell Sci Society

BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH

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G. G. THOMAS, M. D., *Pres.*, Wilmington.
THOMAS E. ANDERSON, M. D., Statesville.
J. HOWELL WAY, M. D., Waynesville.
W. O. SPENCER, M. D., Winston-Salem.
EDW. C. REGISTER, M. D., Charlotte.
DAVID T. TAYLOE, M. D., Washington.
J. A. BURROUGHS, M. D., Asheville.
J. L. LUDLOW, C. E., Winston-Salem.
RICHARD H. LEWIS, M. D., Raleigh, N. C.

W. S. RANKIN, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XXIV. JULY, 1909. No. 4.

RESOLUTIONS ADOPTED BY THE STATE MEDICAL SOCIETY ON THE RETIREMENT OF DR. RICHARD H. LEWIS AS SECRETARY OF THE BOARD OF HEALTH.

WHEREAS our former and most efficient secretary of the Board of Health, Dr. R. H. Lewis, has decided it necessary to resign from the position; and whereas, for the long period of seventeen years of most arduous and difficult labor, he has accomplished so much, by unfaltering zeal and devotion, for the upbuilding and the honor of the profession, both of the State of North Carolina and the nation; and whereas he has so carefully safeguarded the people against the threatened inroad of disease as to save innumerable lives, the suffering incident thereto, and great pecuniary loss; and whereas, during these strenuous years, we have seen and appreciated the results of his great labors; now, wishing to express the esteem in which he is held, not alone by the profession, but the laity, be it hereby

Resolved first, That this society express its conviction that he has done more, both in his official and individual capacity, than would have been possible for any other one to have done.

Resolved second, That we with reluctance accept his resignation, realizing that we lose in some measure his great capabilities and far-reaching influence.

Resolved third. That he, having been such a potent factor with the Legislature, has saved us from impending adverse legislation and secured such salutary measures as are responsible for our present advanced position in sanitary work.

Resolved fourth. That we earnestly implore him to give us yet his wise counsel and help in time of difficulty and threatened legislation.

Resolved fifth. That it is our sincere wish and prayer that he, having done so much for sanitation and the health of others, may himself be blessed with many future years of vigorous health and abundant enjoyment of the blessings and happiness of life.

AN APPRECIATION.

In the retirement of Dr. Richard H. Lewis as their secretary, the State Board of Health has lost a most efficient officer and the public a most devoted servant.

Dr. Lewis' tenure of office has bridged an important stage in the development of public health work. Our understanding of the true nature of communicable disease had its beginning in the discovery of Van Loewenhoek, a lens polisher, of Delf, Holland, in 1683. From its beginning, in that year, to 1850, the idea that minute germs caused disease was but a theory, and but little more than theory, supported by only circumstantial evidence, till 1880, when Robert Koch transformed the theory into a scientific fact, and in so doing laid the sure foundation for preventive medicine and public health. For the next ten years these new facts filtered slowly through the medical profession, reaching the general public about 1890, when the public began to grasp the true meaning of preventive medicine.

As Dr. Lewis was elected secretary of the Board of Health in 1892, the beginning of his official life was coincident with the real beginning of preventive medicine. It therefore became his task to nurse this great movement in its early and tender years, in the years so important to future development, when the foundation so essential to what is to follow is being laid. How well he has performed this task is not for the writer to say, for on this question the present status of public health in North Carolina and the best public health authorities in America have handed down an opinion.

As the present condition of public health in North Carolina is largely the result of Dr. Lewis' labors, in conjunction with the Board of Health, it may be taken as the best evidence of his ability as a sanitarian. His best work is probably recorded in the statute books of the State. With the exception of the act establishing the State Sanatorium for Tuberculosis and an act separating the tuberculous prisoners from the well, he either drew up entirely or materially

modified before introduction all the laws bearing on public health, and was active in securing their passage by the various Legislatures. In this connection credit is due Col. J. L. Ludlow, the able sanitary engineer of the board, for preparing the sections in the amendment to the Revisal of 1905 adopted by the last Legislature, giving the board more power in controlling public water supplies and in suggesting the advisability of analyzing the waters of springs at resorts while open for the entertainment of the public. As long ago as 1902 North Carolina was recognized by the American Public Health Association as one of four of the foremost States in water legislation. Dr. Lewis, with the concurrence of the Board of Health, developed the Laboratory of Hygiene upon the original plan of taxing all corporations or individuals selling water to the public for its support, supplemented by an annual appropriation of $2,000 which he secured from the Legislature of 1907. Another law very much to his credit is our new vital statistics law. Dr. Creesy L. Wilbur, Chief Statistician of the United States Bureau of the Census, has said of this law that it was "the first practical vital statistics law enacted in any of the Southern States." As correct vital statistics form the very basis of intelligent public health work, the value of this law is at once evident. As law is the result of public sentiment, and public sentiment the result of education, these laws are the result of an effectual educational campaign for the improvement of public health. To this Dr. Lewis has contributed through his editorial work in the BULLETIN OF THE STATE BOARD OF HEALTH and through many noteworthy publications and addresses. Among these may be mentioned his "Drinking Water in Relation to Malarial Diseases," which started the change in Eastern Carolina in the domestic water supply from open wells to driven pumps; his "Instructions for Quarantine and Disinfection"; his leaflets on typhoid and malaria; his pamphlet on the prevention of tuberculosis, pronounced by good judges to be the best of its kind. A leading health officer of the State of New York has said that 90 per cent of the anti-tuberculosis work in that State was based upon Dr. Lewis' presidential address before the National Conference of State and Provincial Boards of Health of North America.

The opinion of the great health officials of America of Dr. Lewis is shown by the recognition they have accorded him in having made him president of both the great national public health associations. In 1905 he was president of the National Conference of State and Provincial Boards of Health of North America, and in 1907 he was president of the American Public Health Association. It is therefore very evident that the retiring secretary is a national figure in public health work.

When it is remembered that the small amount of $2,000, out of which clerk's hire, etc., was to be taken, was *all* appropriated by

our State, it can readily be seen that the secretary's service was largely a labor of love. Forced on account of this small appropriation to practice his profession, as an oculist, to earn a living, he has given his resting hours to the service of his country, thereby showing a self-sacrifice for public weal which should always be an inspiration to those who follow him.

The writer fully realizes the embarrassment he takes upon himself in calling attention to the high standard set by his predecessor, but a sense of gratitude and duty, both as an individual and as a public official, will be satisfied with nothing less. In assuming his official cloak I shall always be mindful of him who wore it so worthily.

THE PUBLIC HEALTH IN ITS APPEAL TO THE PEOPLE.

"Dead, your Majesty. Dead, my lords and gentlemen. Dead, Right Reverends and Wrong Reverends of every order. Dead, men and women, born with Heavenly compassion in your hearts. And dying thus around us every day."—*Bleak House.*

Dead last year in the United States, dead in this age of boasted altruism and enlightenment, 150,000 from tuberculosis, 30,000 from typhoid fever, 35,000 from diphtheria, 10,000 from measles, 10,000 from scarlet fever and 10,000 from whooping cough, making a total of about 250,000; and dying to-day, 690 more; dying this very hour, 29 more, and every two minutes, 1 more.

But for these diseases, you and I, our friends and neighbors would have about sixty-six chances in a hundred instead of the thirty-three we now have to live our allotted time—*i. e.*, the sixty or seventy years our Maker constructed the temple of the soul to last. The average duration of life, now about thirty-eight years, would be increased seven and one-half years.

These enormous figures bearing their unwelcome message, are usually set aside as mere bugaboo. The public, in so disposing of them, has long remained at ease, in "blissful ignorance" of the public health, disregarding the duty imposed by God when He held an inquest over the first dead body and made man his brother's keeper. These figures bear the stamp of truth, and in the name of humanity claim the attention of every true citizen. They are taken from the mortality statistics of the Bureau of the Census of the United States Government, which is the same department that estimates the population of our country. Nearly all accept, without doubt, this estimate of our population; comparatively few accept this estimate of our death rate. The difference in the reception given to these two statements cannot be explained on the ground that they come from different authorities; the explanation must rest upon a difference in

the nature of the two facts: One is a source of pride and imposes no responsibility; the other is not a source of pride and does impose responsibility.

The appeal to the heart by these death figures is not their only appeal. They appeal to the purse as well. And as there are many whose ears are more sensitive to the jingle of coin than to the cry of the bereaved, we may for their sakes convert this pain, grief and death into the coin of the realm. This has been done so well by Dr. Chas. A. L. Reed that I quote him verbatim:

"I now appeal to the larger number who, I grieve to say, think only in terms of dollars and cents. So let us translate consumption and typhoid, malaria and pneumonia, cancer and plague into their equivalents, into the coin of the realm. But let us begin with a few primary postulates.

"In the first place, the most valuable natural resource of this country, fields and mines not excepted, is the productive energy of the people. In computing the worth of this resource, a human life, rather than an acre, a load or a tree, must be the basis of reckoning. What is it worth? Let us see.

"A man's life is his capital. What he earns is the interest on his capital. Then suppose a man works 300 days in a year, at $1.25 a day, and that his money thus earned, $375 a year, represents 5 per cent on his capital, which on that basis would amount to $7,500; then multiply this by 150,000 for tuberculosis, 30,000 for typhoid, and so on through the list, which foots up at about a quarter of a million, and add it all together, and you will only have begun. You are to add to this the loss of productive energy of something like 700,000 people constantly ill for a whole year from tuberculosis, and nearly half that number ill for sixty days from typhoid, and so on through the list, at $1.25 a day for each one. Then, ignoring the fact that the lives of many are worth thousands and hundreds of thousands of dollars a year, exclude the nonproducers—women, children and dependents—by dividing the result by two; then still to be on the safe side, divide the result again by two, and the remaining figure, if translated into the coin of the realm and placed in our National Treasury, would not only pay for a properly equipped national department of public health, but would in addition pay the current expenses of the army and navy, duplicate our armament on the seas, fortify our coasts, deepen our inland water ways, and in ten years would pay for the Panama Canal and wipe out our national debt."

So far we have endeavored to establish one fact—the great annual loss in lives and money to our country.

If we have succeeded in this endeavor, we have completed exactly one-half the case for public health; for, manifestly, if this loss is inevitable, impossible to prevent by any practical means, then the less we think and worry about it the better for us. On the other

hand, if this loss is preventable, it at once becomes the imperative duty of those with this preventive power to stay this unchecked march of death. The question, then, at this point resolves itself into this: *Are these diseases preventable?*

The answer to this question is the second of the two facts which completes the case for public health. *This loss is easily preventable.* This last fact, as the first one, is too important to leave propped by mere dogmatism. To have the persuasive power over those concerned that it should have, it must be firmly established on a basis of truth. To this end it is asked that our readers pardon what may seem to be unnecessary details, being unwilling to count details when life is in the balance.

The mind may settle a question in two ways: First, by an individual study of the principles upon which a proposition may rest; second, by accepting as authority those known to have made this study. If the second method be chosen, the larger the number of authorities and the more unanimous their opinion the more certain we may feel that the truth has been attained.

Now the establishment of this fact, that the aforesaid diseases are preventable, by our first method of settlement would require a brief course in the science of disease or pathology, altogether too much for the purpose of this paper. For our present purpose we select the second method, the appeal to authority.

In regard to this particular question there are ten thousand who have thoroughly investigated the preventability of these diseases, and without a dissenting voice they all positively declare that they are preventable. In the face of this, what egotism to claim the right to a different opinion when an investigation such as would entitle to an opinion has not been made!

The problem of public health therefore rests on two thoroughly established facts: First, the great annual loss of our country in lives and money. Second, this loss is preventable.

The problem of public health is preventive medicine. But while preventive medicine is a problem for the public, it is a concern of every individual; for sooner or later the germ of tuberculosis, the germ of typhoid or some other agent of death shall call at your door and levy his tax; and you, unwillingly enough, shall pay this tax—some time with your own suffering or life; some time with the suffering or life of your wife or child or children.

It is a public problem, because it can be applied *only* by the public. It is a possession of the many that may be used or abused by the few. A man residing in an isolated rural district may set fire to his house and inflict an individual loss which concerns the public but to a very slight extent; but if this same man, living in a city, should fire a store that he owned in a business block, he would inflict more than an individual loss. In addition to his own loss he would endanger his neighbors—*i. e.*, the public.

A case of typhoid fever in the country is a menace to a family, and the public are in comparative safety; a case of this same disease in town is a menace to the public, a public danger, because, unless the family are very careful, flies may carry the poison to neighbors living within a radius of two hundred yards.

People who handle the discharges of typhoid fever carelessly do not disinfect them; people who breed flies in unclean horse stables, pig pens and open privies; people who raise mosquitoes in standing water, in tin cans or old barrels, or what not; people who expectorate tubercular sputa anywhere in their houses or on the streets, are curses to public health, to public life, and any community is far better off without them than with them.

It is therefore readily seen that the public health is a communistic interest. And again it will readily be admitted that communistic interest can only be protected by law. But law depends both for its legislation and enactment upon a favorable public sentiment. Thus, ultimately, health legislation and health protection rest on a favorable public sentiment. This public sentiment, so dangerously weak for the support of the large number of lives dependent on it, is in the hands of the educator.

When the majority of our people understand the principles of preventive medicine, when they have once *seriously* considered the awful obligation resting upon them as citizens for the protection of health and life, then will communicable disease cease to levy its tax of pain and death.

So great is the immediate need of this life-saving education, so general is the obligation to protect life and health, and so general are the benefits to be obtained by co-operation to this end, that every individual influence, howsoever humble it may be, and every organized influence, howsoever powerful it may be, should contribute their full quota. The great influences of the medical profession, the public-school system, the press and the pulpit owe it to humanity to unite in this great work.

The principal work of this office for some time will be to assist in every way possible in this co-operative educational campaign for the improvement of our public health.

DANGEROUS WATER.

Under chapter 808 of the Laws of 1909, the public are hereby officially notified that the water sold by the Buffalo Lithia Springs Water Company, of Buffalo Lithia Springs, Va., has been found in three successive analyses made by the State Laboratory of Hygiene to be dangerous to the public health.

REVIEW OF DISEASES FOR JUNE, 1909.

EIGHTY-SIX COUNTIES REPORTING.

Ninety-six out of ninety-eight counties have superintendents of health.

Except in the case of the more contagious and dangerous diseases, the superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of June the following diseases have been reported from the counties named:

SMALLPOX.—Beaufort, 1; Caldwell, 1; Camden, 25; Craven, 1; Duplin, 9; Harnett, 3; Madison, 6; Nash, 1; Pitt, 8; Robeson, 8; Rowan, 7; Sampson, 4; Watauga, 12—13 counties.

MEASLES.—Bladen, a few; Carteret, a few; Caswell, several; Catawba, a few; Cleveland, a few; Craven, many; Davidson, 2; Davie, a few; Duplin, 4; Forsyth, several; Harnett, several; Macon, 4; Mecklenburg; Orange, a few; Robeson, a few; Watauga; Wilkes, a few; Yadkin, several—18 counties.

WHOOPING COUGH.—Alexander, 5; Bertie, several; Bladen, many; Brunswick, several; Caldwell, 35; Caswell, several; Catawba, a few; Cleveland, a few; Cumberland, several; Davidson, 50; Davie, several; Forsyth, a few; Franklin, many; Graham, 5; Granville, 10; Greene, 6; Guilford; Haywood, 5; Iredell, many; Jackson, several; Lee, 5; Lenoir, 5; Lincoln, 10; Mecklenburg; Montgomery, 16; Polk, 1; Randolph, a few; Robeson, 2; Rowan, several; Union, many; Vance, a few; Watauga, 15; Wilkes, a few; Yancey—34 counties.

SCARLATINA.—Caldwell, 1; Camden, 5; Cleveland, a few; Forsyth, 3; Hyde, a few; McDowell, 1; Macon, a few; Orange, 12; Rutherford, 4; Tyrrell, 7; Yadkin, 1—11 counties.

DIPHTHERIA.—Alamance, 1; Alleghany, 1; Caldwell, 6; Caswell, 1; Craven, 1; Cumberland, 3; Duplin, 3; Durham, 3 or 4; Edgecombe, 5; Granville, 1; Halifax, 1; Hyde, 2; Jackson, 1; Mecklenburg; Montgomery, 1; Rutherford, 2; Vance, 3—17 counties.

TYPHOID FEVER.—Alamance, several; Alexander, 24; Alleghany, 5; Ashe, 14; Beaufort, 5 or 6; Bertie, several; Bladen, a few; Brunswick, 2; Burke, a few; Cabarrus, several; Caldwell, several; Camden, 30; Catawba, prevalent; Chatham, 15; Cherokee, 2; Clay, 4; Cleveland, good many; Columbus, 11; Craven, 16; Cumberland, several; Davie,

several; Duplin, 20; Durham, 2 or 3; Edgecombe, 2; Forsyth, a few; Franklin, a few; Gates, 7; Graham, 2; Granville, 1; Greene, 12; Guilford, 4; Halifax, several; Harnett, several; Haywood, 6; Henderson, 6; Iredell, 14; Jackson, 8; Lee, 4; Lenoir, 2; Lincoln, 12; McDowell, 1; Macon, 5; Madison, 5; Martin, several; Mecklenburg; Mitchell; Montgomery, 3; New Hanover, 5; Onslow, a few; Orange, 6; Pamlico, 1; Pender, 2; Person, 6; Pitt, 7; Polk, 4; Randolph, several; Richmond, 1; Robeson, several; Rowan, several; Rutherford, 6; Sampson, a few; Scotland, 6; Surry, 10; Swain, 1; Union, several; Vance, 4; Warren, 2; Watauga, 8; Wayne, a few; Wilkes, several; Yadkin, 5—71 counties.

Malarial Fever.—Currituck; Guilford; Henderson; Northampton; Onslow; Washington—6 counties.

Malarial Fever, Pernicious.—Beaufort, 1; Bertie, several; Hyde, several; Mecklenburg, a few; Montgomery, 2—5 counties.

Pneumonia.—Alamance, 4; Alexander, 1; Bladen, 1; Brunswick, 1; Catawba, a few; Chatham, 4; Cleveland, a few; Duplin, 2; Edgecombe, 1; Halifax, 1; Harnett, 1; Henderson, 2; Jackson, several; Lincoln, 1; Mecklenburg; Montgomery, 2; New Hanover, 1; Richmond, 3; Rowan, 2; Warren, 1; Washington, 1; Watauga, 1; Wilkes, 2; Yadkin, 2—24 counties.

Cerebro-spinal Miningitis.—Alamance, several among children; Camden, 2; Cherokee, 4; Gates, 2; Jackson, 1; Lenoir, 1—6 counties.

Varicella.—Cherokee, 2.

Influenza.—Montgomery, 4.

Cholera, in Hogs.—Martin.

Distemper.—Watauga, epidemic.

No reports received from Anson, Dare, Gaston, Johnston, Jones, Moore, Perquimans, Rockingham, Stanly, Stokes, Transylvania and Wake.

No diseases reported from Buncombe, Chowan, Hertford, Pasquotank and Wilson.

SUMMARY OF MORTUARY REPORTS FOR JUNE, 1909.

	White.	*Colored.*	*Total.*
Aggregate population	141,100	91,200	232,300
Aggregate deaths	176	176	352
Representing temporary annual death rate per 1,000	14.8	22	18.1
Causes of Death.			
Typhoid fever	14	4	18
Scarlet fever	1	0	1
Malaria	0	5	5
Diphtheria	1	1	2
Whooping cough	3	2	5
Measles	0	2	2
Pneumonia	3	7	10
Consumption	28	26	54
Brain diseases	9	7	16
Heart diseases	12	6	18
Neurotic diseases	4	0	4
Diarrhœal diseases	19	30	49
All other diseases	78	77	155
Accident	3	6	9
Suicide	1	2	3
Violence	0	1	1
	176	176	352

Deaths under five years 123

Stillborn 43

Mortuary Report for June, 1909.

Towns and Reporters.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total Deaths By Races.	Total Deaths By Towns.	Deaths under five years.	Stillborn.
Asheville	W.	15,000	22,000	17.5	19.6	1	--	--	--	--	--	--	7	--	--	--	1	13	--	--	--	22	36	9	--
A. S. Halyburton, C.C.	C.	7,000		20.0		--	--	--	--	1	1	--	2	1	--	--	--	8	1	--	--	14		8	4
Charlotte	W.	18,000	30,000	13.9	15.1	2	--	--	--	--	--	2	2	--	2	--	2	10	--	1	--	21	38	8	3
Dr. F. O. Hawley.	C.	12,000		16.9		1	--	--	--	--	1	1	1	--	--	--	1	11	1	--	--	17		7	5
Durham	W.	12,000	18,000	15.0	19.9	1	--	--	--	--	--	--	4	3	2	--	--	5	--	--	--	15	30	--	1
Dr. T. A. Mann.	C.	6,000		30.0		1	--	--	--	--	--	--	2	4	2	--	--	6	--	--	--	15		--	8
Dunn	W.	2,000	2,500	0.0	4.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--
Dr. I. F. Hicks.	C.	500		24.0		--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	1		1	--
Edenton	W.	3,000	6,000	3.6	7.9	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	4	--	--
Dr. H. M. S. Cason.	C.	3,000		12.0		--	--	--	--	--	--	--	1	--	--	--	2	--	--	--	--	3		2	--
Elizabeth City	W.	6,000	10,000	9.9	18.0	--	--	--	--	--	--	--	1	--	--	1	1	2	--	--	--	5	15	1	1
Dr. C. B. Williams.	C.	4,000		30.0		--	--	--	--	--	--	1	1	--	--	--	7	1	--	--	--	10		9	1
Fayetteville	W.	5,000	8,500	12.0	14.1	--	--	--	--	--	--	--	--	1	--	1	1	2	--	--	--	5	10	1	--
Dr. W. S. Jordan.	C.	3,500		17.0		--	--	--	--	--	--	--	--	--	1	--	1	3	--	--	--	5		3	1
Goldsboro	W.	6,000	10,000	13.9	14.4	1	--	--	--	1	--	--	--	1	1	--	2	1	--	--	--	7	12	3	--
Robt. A. Creech, Esq.	C.	4,000		15.0		--	--	--	--	--	--	--	--	--	1	--	--	4	--	--	--	5		1	1
Greensboro	W.	10,000	16,000	18.0	19.9	--	--	--	--	2	--	--	--	2	2	1	2	4	2	--	--	15	27	4	2
Dr. Edmund Harrison.	C.	6,000		24.0		--	--	--	--	--	--	--	3	--	--	--	3	5	1	--	--	12		--	2
Marion	W.	1,500	1,600	7.9	7.5	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1	1	1	--
Dr. Guy S. Kirby.	C.	100		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Oxford	W.	2,000	4,000	12.0	9.0	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2	3	--	--
Dr. S. D. Booth.	C.	2,000		6.0		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Raleigh	W.	14,000	25,000	19.7	23.0	--	--	--	--	--	--	--	2	1	1	--	3	15	1	--	--	23	48	15	3
C. M. Walters, H. O.	C.	11,000		27.2		--	--	1	1	--	--	3	3	--	1	--	--	15	--	1	--	25		--	--
Rocky Mount	W.	5,000	8,000	9.6	10.5	1	1	--	--	--	--	--	--	--	--	1	1	--	--	--	--	4	7	--	--
Dr. I. P. Battle.	C.	3,000		12.0		--	--	--	--	--	--	--	--	--	--	--	1	2	--	--	--	3		--	1
Salem	W.	3,000	3,400	27.9	24.6	1	--	--	--	--	--	--	2	--	1	--	--	3	--	--	--	7	7	--	--
F. H. Vogler, Mayor.	C.	400		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Salisbury	W.	5,000	8,000	26.4	30.0	2	--	--	1	--	--	--	1	--	--	--	1	6	--	--	--	11	20	13	--
C. W. Woodson, H. O.	C.	3,000		36.0		1	--	--	--	--	--	1	--	--	--	--	2	5	--	--	--	9		--	--
Southport	W.	1,000	1,600	0.0	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dr. J. A. Dosher.	C.	600		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Weldon	W.	800	1,400	30.0	25.6	--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	2	3	1	--
W. W. Wiggins, Mayor.	C.	600		19.9		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Wilmington	W.	16,000	30,000	17.1	23.1	5	--	--	--	--	--	--	4	1	1	--	2	10	--	--	--	23	58	11	4
Jos. Akerman.	C.	14,000		30.0		1	--	2	--	--	--	1	7	1	--	--	8	13	1	1	--	35		14	9
Wilson	W.	3,800	6,800	9.4	22.9	--	--	--	--	--	--	--	--	--	1	--	2	--	--	--	--	3	13	2	--
Dr. W. S. Anderson.	C.	3,000		39.9		--	--	2	--	1	--	--	2	--	--	--	2	2	1	--	--	10		--	--
Winston	W.	12,000	20,000	9.0	11.4	--	--	--	--	--	--	1	3	--	1	--	1	3	--	--	--	9	19	2	--
Dr. W. N. Dalton.	C.	8,000		15.0		--	--	--	--	--	--	--	4	1	1	--	3	--	--	--	1	10		7	2

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance.....Dr. H. M. Montgomery.
Alexander.....Dr. B. O. Choate.
Alleghany.....Dr. Robert Thompson.
Anson.....Dr. E. S. Ashe.
Ashe.....Dr. J. C. Testerman.
Beaufort.....Dr. P. A. Nicholson.
Bertie.....Dr. John L. Pritchard.
Bladen.....Dr. L. B. Evans.
Brunswick.....Dr. J. Arthur Dosher.
Buncombe.....Dr. D. E. Sevier.
Burke.....Dr. J. R. Anderson.
Cabarrus.....Dr. J. M. Wallace.
Caldwell.....Dr. C. L. Wilson.
Camden.....Dr. C. G. Ferebee.
Carteret.....Dr. W. E. Headen.
Caswell.....Dr. S. A. Malloy.
Catawba.....Dr. T. C. Blackburn.
Chatham.....Dr. L. E. Farthing.
Cherokee.....Dr. J. F. Abernethy.
Chowan.....Dr. H. M. S. Cason.
Clay.....Dr. J. M. Sullivan.
Cleveland.....Dr. T. E. McBrayer.
Columbus.....Dr. H. B. Maxwell.
Craven.....Dr. Joseph F. Rhem.
Cumberland.....Dr. A. S. Rose.
Currituck.....Dr. H M. Shaw.
Dare.....
Davidson.....Dr. E. J. Buchanan.
Davie.....Dr. M. D. Kimbrough.
Duplin.....Dr. John A. Ferrell.
Durham.....Dr. N. M. Johnson.
Edgecombe.....Dr. Spencer P. Bass.
Forsyth.....Dr. J. K. Pepper.
Franklin.....Dr. R. F. Yarborough.
Gaston.....Dr L. N. Glenn.
Gates.....Dr. Geo. D. Williams.
Graham.....Dr. M. T. Maxwell.
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Stokes.....
Surry.....Dr. John R. Woltz.
Swain.....Dr. J. A. Cooper.
Transylvania.....Dr. Goode Cheatham.
Tyrrell.....Dr. J. L. Spruill.
Union.....Dr. Henry D. Stewart.
Vance.....Dr. E. F. Fenner.
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Warren.....Dr. M. P. Perry.
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Watauga.....Dr. J. M. Hodges.
Wayne.....Dr. T. M. Bizzell.
Wilkes.....Dr. John Q. Myers.
Wilson.....Dr. W. S. Anderson.
Yadkin.....Dr. S. L. Russell.
Yancey.....Dr. W. B. Robertson.

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BULLETIN

OF THE

NORTH CAROLINA BOARD OF HEALTH

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VOL. XXIV. AUGUST, 1909. No. 5.

THE ANTITOXIN LAW.

The Legislature of 1909 passed an act providing that the State Board of Health supply diphtheria antitoxin to the boards of county commissioners and boards of aldermen, who would agree to pay for its use in indigent cases of diphtheria occurring in their respective counties and towns.

The State Board of Health is pleased to announce that they have arranged with one of the most reliable producers of antitoxin in this country to supply antitoxin at the following low rates:

1,000 units	$ .50
3,000 units	1.30
5,000 units	1.90

This is not quite one-third the regular selling price of antitoxin, and of course can be supplied, as provided in the law, to the indigent only, at these low figures.

As yet only twenty-one counties, and three towns, have decided to take advantage of this act. These counties and towns will receive a supply of antitoxin within the next few days.

The County Superintendents of Health should see to it, that their county commissioners are aware of this law and understand its im-

portant provisions. See that your county commissioners do not lose sight of the following important facts connected with this law:

First. The antitoxin is for the indigent *only*, and should therefore be supplied to those who would otherwise be without it.

Second. Diphtheria untreated with antitoxin kills from thirty-three to sixty-six in every hundred of those who have it. Diphtheria treated with antitoxin kills less than five in every hundred of those who have it. Can a great county afford to be careless of the life of even one helpless child? Is life cheaper than 3,000 units of antitoxin at $1.30?

Third. Diphtheria antitoxin is not only a curative agent for the sick, but an agent for the protection of the public. It prevents the extension of the disease, thereby avoiding epidemics that would close the doors of schools and fetter the hands of industry.

Fourth. The commissioners pay only for what is used, returning what remains out of date to the State Board of Health.

TWO REPRINTS.

The Editor respectfully begs leave to call attention to two reprints in this issue of the BULLETIN.

As every physician is a guardian of the public health, the conscientious discharge of his responsibilities cease not with the application of curative agents to the diseased individual, but extend further to the protection of public health by the application of the means of prevention of disease. To this end it is important that he should understand the origin of disease and its means of propagation.

The paper by Dr. Anderson is timely on account of the approaching season of maximum typhoid prevalence, and more especially on account of rather recent observations on typhoid epidemiology, the importance of which demands greater publicity.

Typhoid fever, always due to a specific germ, the Bacillus typhosus, may be conveyed to the body by four principal methods: By water, by milk, by flies or by contact. The features characterizing an epidemic of this disease differ, according to the origin and mode of propagation of the epidemic. These features, or groups of features, are as characteristic for epidemics due to flies, or milk, or water, or contact, as a symptom, or group of symptoms, is characteristic for an individual disease like pneumonia or typhoid. This is well brought out in Dr. Anderson's paper.

The typhoid tourniquet, which originated with the Minnesota State Board of Health, has proven so life-saving in the suppression of epidemics of typhoid fever, that its use should be understood and

appreciated by every physician who realizes his duties to the public health. For this reason we reproduce it in this issue of the BULLETIN, at the same time cherishing the hope that it will receive the careful attention from the profession to which its value entitles it.

THE DIFFERENTIATION OF OUTBREAKS OF TYPHOID FEVER DUE TO WATER, MILK, FLIES AND CONTACT.*

BY JOHN F. ANDERSON.

Passed Assistant Surgeon and Assistant Director Hygienic Laboratory U. S. Public Health and Marine Hospital Service, Washington, D. C.

GENTLEMEN:—When I received the invitation from our Honorable President, Dr. Lewis, to read a paper before this association on the differentiation of Typhoid Fever outbreaks due to infected water, milk, etc., I fully realized my limitations in dealing with the subject. However, I thought that a few observations I had made while investigating in my official capacity several epidemics of Typhoid Fever might be of some interest and perhaps profit to you.

It is a serious reflection upon the people of the United States that, according to the census report for 1900, there were 35,379 deaths in the United States that year from Typhoid Fever—a preventable disease. This loss of life, according to Whipple's calculation, represented money loss to the community of $212,000,000 for that year alone.

The average Typhoid death rate in cities of the United States is about 35 per 100,000. Whipple states that in the cities about 40 per cent of the Typhoid Fever is due to water, 25 per cent to milk, 30 per cent to contagion—including fly-transmission, and only about 5 per cent to all other causes. The Board of Officers of the Public Health and Marine Hospital Service investigating Typhoid Fever in the District of Columbia found in 1906, that of the cases studied by them about 11 per cent were indefinitely attributed to milk infection, about 7 per cent to infection by contact; in 1907, they definitely attributed about 9 per cent to milk and about 19 per cent to contact.

In the study of an outbreak of Typhoid Fever it is of vital importance, first of all, to determine whether the disease is really Typhoid Fever. For this purpose, in addition to the usual bedside methods, two other procedures may and should be employed in all doubtful cases. I refer to the Widal reaction and to blood cultures. The blood culture is of more value than the Widal test in that cultures can be

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*Read before the American Public Health Association at Winnipeg, August, 1908.

obtained in the first days of the disease. For the examination of the blood we have found the bile enrichment method, followed by plating on Endo medium, the most satisfactory. By this method, cultures taken in the first week of the disease will give positive results in 90 to 100 per cent of the cases.

Having determined that the disease prevailing with undue frequency is Typhoid Fever, it is necessary that each case be studied in detail from an epidemiological standpoint. In places which require the reporting of Typhoid Fever, the study is much easier than in those where it is not done. The essential data can only be obtained by competent persons visiting the patients and obtaining all possible information from the patient, nurse and family, and by an inspection of the premises.

It is well to have a map of the city and, as the data for each case are collected, to indicate the location on the map by sticking in a large pin. A glance at this will readily show if the cases are confined to any particular locality.

All data collected should be at once tabulated and carefully studied as to the bearing of the various probable sources of infection.

I shall now take up in detail the special characteristics of outbreaks of Typhoid Fever due to infected water and milk, and to transmission by flies, etc.

CHARACTERISTICS OF OUTBREAKS DUE TO WATER.

The striking characteristics of outbreaks of Typhoid Fever due to water are:

1. *General distribution of cases throughout the area supplied by a particular water.*

The incidence of cases is independent of social conditions, occupation and age, except that very young children as a rule are not affected in equal proportion to other ages, due, perhaps, to the difference in susceptibility and to taking less water.

2. *Explosive onset of the outbreaks.*

When the water supply previously good becomes suddenly infected, as in the case of Plymouth or Butler, Pa., the outbreak begins with great suddenness and violence. There is a sudden and great increase in the number of cases reported; this increase may continue until the sources of infection of the water are removed or the water supply changed. If the former be the case there is a more gradual decline in the number of cases than when the supply is suddenly replaced by a pure one, in which case the decrease is sudden and marked. Secondary cases from contacts may keep the number above normal for a time.

When there is a continuance of the source of the infection, as in the case of the Lowell and Lawrence outbreaks of 1890 and 1892, the onset is not usually so explosive in character and the decline is

more gradual. In Pittsburg, where there is a continual infection of the water supply, the disease is more prevalent in the fall and winter, which may be due in part to other causes than water.

When a water supply, such as a river, is subject to continual infection the increase in the number of cases in late summer and fall may be attributed to the fact that, as the number of cases increase which supply infection for the stream, the amount of infection is correspondingly increased.

3. *Seasonal prevalence; spring or late winter.*

Outbreaks of Typhoid due to infection of a water supply previously good usually occur in the late winter or spring. This is due, as in the case of the Plymouth and New Haven epidemics, to the fact that infected discharges are thrown on the frozen ground and when thaws or floods come the infection is suddenly washed into the stream.

When a supply becomes infected by the failure of the purification methods used or by a change in the source, the outbreak is, of course, independent of season.

4. *Comparative freedom from the disease of persons not using the suspected water.*

When there is more than one water supply or where persons use pure bottled water or boil the water, the comparative freedom of such persons from the disease is striking. This was well shown in the Butler epidemic, where a large part of the first ward of the city received their water from deep driven wells; in this ward, with an equal population to the other four wards, there were only about one-half as many cases.

5. *Inspection of the watershed shows evident sources of infection.*

An inspection of the watershed may show that it is being continuously infected by discharges of Typhoid Fever cases. In some cases, as at Butler and other places, the discharges may actually have been allowed to go directly into the stream from privies overhanging it.

6. *The outbreaks may have begun or ended, following a change of the water supply.*

When a previously good water is replaced for any good reason by an unknown water or a suspected water is replaced by one of undoubted purity, the consequent beginning or discontinuance, as the case may be, of an outbreak of Typhoid would properly be laid to water.

7. *Bacteriological and chemical examination reveals evidences of pollution.*

While it is practically hopeless to expect to find the typhoid bacillus in water, still the finding of *B. coli* in small amounts of water and chemical evidences of pollution are additional evidence against the water.

8. *Exclusion of all other probable causes.*

This means the exclusion of milk, food, contact, fly transmission, and other possible sources of infection.

OUTBREAKS DUE TO MILK.

On investigating an outbreak of Typhoid Fever, the following points would indicate very strongly that the infection was being introduced through the milk:

1. *Sudden outbreak of an unusual number of cases followed by a rapid decline.*

The outbreak is frequently sudden in its onset; a large number of cases occurring on a certain milk route within a few days. If the infection be introduced only once, as by flies, there is a sudden rise followed by a sudden decline in the number of cases. If there is a continuance of the infection, as from a bacillus-carrier, the onset may be more gradual and the decline will be delayed.

In dairies which do not practice sterilization of bottles, the milk may become infected through bottles delivered at houses where there are cases of Typhoid Fever; these infected bottles are returned to the dairy, refilled, and delivered to other customers. Where the milk becomes infected by washing the cans with infected water, as in the Palo Alto outbreak, the number of cases is usually much greater than when infected in other ways. After the usual incubation period secondary cases from contacts begin to appear.

2. *The appearance of an unusual number of cases among customers of a certain dairy.*

The appearance of an unusual number of cases without a general increase elsewhere on the route of a dairy should at once direct especial attention to the milk. Of course Typhoid Fever due to infection from other sources may occur among persons supplied by a particular dairy, but they will not be found to be chiefly consumers of the milk. It is often very striking how the consumers of a dairy whose milk is infected may be picked out by the unusual proportion of cases on that milk route. Very frequently cases may be traced in persons not directly supplied by the suspected dairy, but who have taken this milk at the home of some friend or at a restaurant. An increase in the number of cases on a certain route associated with a decrease generally throughout the city is particularly suggestive of milk infection.

3. *Unusual incidence of cases among users of milk.*

It will be found that there is unusual prevalence of Typhoid Fever among the users of milk; the nonconsumers escape or develop secondary cases. As women and children generally use more milk than men, an unusual prevalence of the disease among them is a common feature of milk-borne outbreaks. Those families on the suspected route who make a practice of pasteurizing their milk escape, except from infection as secondary cases.

4. *More cases among the well-to-do than among the poor.*

In a milk outbreak there are usually more cases among the well-off, due to the fact that they are more able to buy milk and use it in

larger quantities than the poor, while in fly-borne outbreaks the poor and those living under insanitary conditions are more often attacked.

5. *The finding of the typhoid bacillus in the suspected milk.*

This is practically hopeless, as the milk rarely comes under suspicion for at least three weeks after having become infected. In addition, the technical difficulties are so great that it is an almost hopeless procedure, though the isolation of the organism should be attempted. If successful, it is absolutely conclusive.

CHARACTERISTICS OF THE OUTBREAKS DUE TO CONTAGION AND TRANSMISSION BY FLIES.

It is impossible to state definitely the characteristics of outbreaks of Typhoid Fever due to transmission by flies and to contacts as in the case of milk and water outbreaks. A final conclusion in regard to the source of the infection can only be reached by a consideration of all the factors involved.

For purposes of convenience I shall discuss the characteristics of outbreaks of Typhoid Fever due to contagion and transmission by flies at the same time. The great part played by flies in the transmission of Typhoid Fever was first emphasized in the masterly Report of the Origin and Spread of Typhoid Fever in United States Military Camps during the Spanish War, by Reed, Vaughan and Shakespeare. They concluded that "flies were undoubtedly the most active agents in the spread of Typhoid Fever. Flies alternately visited and fed on the infected fecal matter and the food in the mess tents. More than once it happened when lime had been scattered over the fecal matter in the pits, flies with their feet covered with lime were seen walking over the food. Typhoid Fever was much less frequent among members of messes who had their mess tents screened than it was among those who took no such precaution. Typhoid Fever gradually died out in the fall of 1898, in the camps at Knoxville and Mead with the disappearance of the fly, and this occurred at a time of year when in civil practice Typhoid Fever is generally on the increase. The first pits at Knoxville contained, before the first twenty-four hours had passed after the arrival of the troops, fecal matter infected with the Typhoid bacillus. Flies swarmed everywhere. Instead of abating, the disease increased. The soldiers were using the same water used exclusively by the inhabitants of West Knoxville, and among the latter there was not at that time a case of Typhoid Fever. Certainly the disease was not disseminated through the drinking water.*

Alice Hamilton† investigated in 1902 an outbreak of fever in the Nineteenth Ward of the city of Chicago. This ward, which only contained about one thirty-sixth of the total population of the city, had

*†Journal Am. Med. Assn., vol. 40, 1902, p. 576.

between one-sixth and one-seventh of all the deaths from Typhoid Fever. It seemed to her that, while the water was undoubtedly the causative factor in the epidemic throughout the city, there must be some local cause for its undue prevalence in the Nineteenth Ward. The sanitary arrangements in this ward were found to be very bad and on those streets with the worst sanitary arrangements there were the largest number of deaths from Typhoid Fever, irrespective of the poverty of the inhabitants.

Flies caught in two undrained privies, on the fences of two yards, on the walls of two houses, and in the room of a Typhoid patient, were used to inoculate 18 tubes: from five of these tubes the Typhoid bacillus was isolated. In this outbreak the chain of evidence implicating the fly in the spread of the disease was certainly convincing and almost complete.

The outbreak in the city of Winnipeg, in August, 1904, investigated by Dr. E. O. Jordan, which was confined almost entirely to the poorer part of the city, was attributed to transmission by flies and contacts.

Outbreaks due to direct contact are seen especially in institutions where there are Typhoid Fever cases and in houses where the family and friends visit and assist in the care of the patient. In these cases the infection is conveyed either directly by the future patient or indirectly by the nurse to food consumed by others.

Typhoid-carriers, such as the one reported by Soper in the person of a cook, who was responsible for at least 28 cases of Typhoid Fever in families in whose employ she had been, are instances in which the infection is conveyed by a third person.

The bacilli have been found in practically all of the excretions of Typhoid Fever cases and it is only by the most scrupulous care on the part of the attendant that infection can be avoided for himself and others. The Board of Officers of the Public Health and Marine Hospital Service, studying Typhoid Fever in the District of Columbia, attributed about 7 per cent of the cases in 1906, and about 19 per cent in 1907, to contact infection from other cases.

The chief characteristics, then, of outbreaks of Typhoid Fever due to transmission by flies and by contact are their local character, their appearance in places where the sanitary conditions are poor or where they are neglected, occurring during the fly season in the case of fly transmission and among those most closely associated with the patient.

THE TYPHOID TOURNIQUET.

If the simplest epidemiological information could be substituted for the so prevalent old wives' fables relating to wells and water, Typhoid Fever could be cut in half merely because then the physician and the health officer would begin to act without waiting for water analyses, or even for a list of the Typhoid cases. The first duty of the health officer, who knows that Typhoid exists in a community is not to make an investigation, but is to face the actual status—to treat the emergency symptoms, without waiting for the discovery of the ultimate cause. If a man is spurting blood from a wounded thigh, the surgeon does not wait to determine the exact nature and extent of the lesion—nor even the exact vessel concerned—he throws a tourniquet around the whole limb to stop the flow—and then at leisure he investigates, finds the vessel or vessels concerned, and ties it or them in a systematic fashion according to approved surgical canons. Exactly parallel is the condition of a community suffering from Typhoid. Instead of laboriously searching for the particular source—a search which may take weeks, years, or even, as in Washington, D. C., a decade—the proper course is to stop the existing epidemic. To do this requires an immensely vigorous publicity campaign, but it can be done. In Minnesota our first gun is fired—not at the water supply, for we cannot know at first that the water is infected—not at the milk supply, for we cannot know at first that the milk is infected—not at the raw food, or flies—we cannot know at first that these are responsible—not at fingers even, although it is always safe to assume that fingers are a factor in every outbreak. We cannot attack any one of these, when first called in, because at that time we do not know which is the cause. We attack every one at once, as the surgeon in the parable ligatures the whole limb. Later we pick out at leisure the particular source and cut that off.

The method is very simple. On finding a Typhoid outbreak in a town, we issue in the papers, display on the streets and address to every householder the following placard:

To the Citizens of Blank.

Typhoid Fever is epidemic in Blank.

The Minnesota State Board of Health is investigating this epidemic to find its exact source. Meantime govern yourselves as follows:

1. *Typhoid Fever* is contracted solely by the mouth. If you do not put the poison of Typhoid Fever into your mouth *you will never contract Typhoid Fever.* Therefore, *watch the mouth.*

2. *Do not eat or drink anything* (water, milk, oysters, fresh vegetables or anything else) *unless* it has been first *boiled, broiled, baked, roasted, fried* or otherwise *thoroughly heated* through and through.

3. *Do without all food or drink* which has not first been thus heated. (Canned or bottled foods or drinks (other than milk or water) are not included in this.)

5. If living in the same house with a Typhoid Fever patient, *do not handle your own food*, or food intended for anyone else, even if it has been heated, except with *hands* that have been *thoroughly washed* with soap and very hot water. (Preferably also with antiseptic—ask your physician about the antiseptic to use.) *Wash before every meal* in this way and before cooking, serving or eating *anything or putting the fingers in the mouth.*

5. If there are flies about, see that all food and drink is protected from them at all times. Flies often carry Typhoid poison to foods and drinks.

6. *The poison of Typhoid Fever* does not show itself for *two weeks* after it enters the body. Therefore for the next two weeks, Typhoid cases may develop from Typhoid poison already taken in. But any case which develops on and after (a date two weeks later than the date of the placard) will be due *solely to neglect* of this notice and failure to carry out minutely the directions here given.

Later more detailed information is published or mailed concerning contact, convalescents, etc., from time to time. The physicians of the community are visited separately or when possible addressed at a meeting convened for the purpose; in both cases, with the object of posting them on the simple essentials of epidemiology—contact Typhoid, flies, milk, dangers from convalescents, etc. The successful stopping of a Typhoid outbreak depends on the vigor with which the public, but particularly the physicians, can be impressed with facts which neither physicians nor public usually believes—that Typhoid Fever is not necessarily a matter of infected water—and is not even a matter of garbage piles, sloughs, damp cellars or sewer gas—but is a matter of Typhoid discharges reaching mouths. Trained nurses are sent to circulate amongst the poor families, not to nurse but to teach by demonstration how to avoid secondary infection, and every reported case is investigated to determine if the source of infection be primary or secondary, in order to cut off the latter.

After getting out this notice, seeing the physicians, etc., as above outlined, lists of the cases to date are obtained direct from the physicians (because the cases are usually not yet reported in full to the health officer), and then the next step is to see the individual patients and secure from them the epidemiological data.

If the physicians are to be efficient and earnest co-operators in epidemiology with health officials, this, and not the mere "report of cases of Typhoid," must be the form required of the physician in his initial report. Until the good time comes when health departments, weary of receiving physicians' reports on Typhoid Fever which convey no useful information, except that a supposed case exists at a

certain or uncertain address; and until the health departments, especially State health departments, realize that the useful information which the physician might supply when he sees the case early, before the lapse of time, delirium, the exhaustion of the family members from nights of nursing and days of anxiety spoils the evidence, should not be left to be acquired if at all, weeks later, we shall not have epidemic records worthy of the name. When that time does come—when every Typhoid case is regarded seriously, promptly reported, and immediately fully investigated by trained men with full information as to previous associates, milk, water, etc.—we shall not have epidemics at all—or at least only those which arise from peculiar complications of circumstances, beyond human ingenuity to forestall.

From the data thus secured, the distribution of the Typhoid as it stands at the time is ascertained. Then by the dates of onset of the cases, scrutinized in the light of the data secured as to the chances for contact, and the establishment of secondary foci, all secondary cases are eliminated. This most important step leaves the primary cases to be plotted on a map, and in this way the locality distribution of the original outbreak is ascertained. Applying now our formulæ regarding the different causes of the different locality distributions, again in the light of the data as to contact, milk supply, water supply and sewage disposal conditions, the primary cause or causes are determined. Systematically applied, with a sufficient force of trained data-collectors, and with sufficiently energetic and pungent publicity, first the outbreak should be stopped, and second the cause or causes of any ordinary primary outbreak of Typhoid should be found ordinarily within a week or two. When the cause is found, its treatment will be indicated by its own charactertistics. Mechanical or physical deficiencies in a public water supply may be remedied, infected wells disinfected or abandoned, fly-breeding places abolished, houses screened, Typhoid cases, convalescents, perhaps even carriers, removed from milk-handling positions, mothers, nurses, physicians instructed regarding contact infection, and the community placed in a position to obviate recurrence.

But, alas! often the community concerned is too poor, or too unbelieving to follow advice concerning waterworks, reconstruction under supervision, sewage disposal plans, etc.; when the epidemic is over, the old conditions, spasmodically bettered, are allowed to return, and many times the final abolition of the Typhoid must wait for the growth of a new generation.

DANGEROUS WATER.

In compliance with chapter 808 of the Laws of 1909, the public are hereby officially notified that the water sold by the Buffalo Lithia Springs Water Company of Buffalo Lithia Springs, Va., and the water sold by Smith's Lithia Water Company of Oxford, N. C., has been found by three successive analyses made by the State Laboratory of Hygiene to be dangerous to the public health.

REVIEW OF DISEASES FOR JULY, 1909.

EIGHTY-EIGHT COUNTIES REPORTING.

Ninety-seven out of ninety-eight counties have superintendents of health.

Except in the case of the more contagious diseases, the superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of noncontagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of July the following diseases have been reported from the counties named:

SMALLPOX.—Harnett, 4; Johnston, 1; Lenoir, 2; Mitchell, 8; Montgomery, 10; Robeson, 6; Rowan, 1; Watauga, 18—8 counties.

MEASLES.—Burke, a few cases; Caldwell, 1; Carteret, several; Caswell, 25; Craven, a few; Davidson, 2; Forsyth, a few; Jones, a few; Wilkes, a few—9 counties.

WHOOPING-COUGH.—Alexander, 10; Bladen, a few; Brunswick, several; Burke, a few; Caldwell, 50; Caswell, 15; Catawba, several; Cherokee, 30; Cleveland, a few; Craven, a few; Cumberland, several; Davidson, 25; Davie, many; Duplin, 10; Forsyth, a few; Franklin, a few; Graham, several; Granville, 8; Guilford, 2; Harnett, 3; Haywood, a few; Iredell, a few; Jones, a few; Lee, 4; Lincoln, 8; Mecklenburg, a few; Polk, 4; Richmond, 8; Robeson, 10; Transylvania, a few; Vance, a few; Wake, 2; Yancey, prevalent—33 counties.

SCARLATINA.—Alamance, epidemic in some sections; Cleveland, a few; Davidson, 2; Durham, 2 or 3; Forsyth, 15; Gaston, 9; Granville, 2; Guilford, 1; Halifax, 3; Hyde, a few; Johnston, 2; McDowell, 1; Rowan, 5; Sampson, 1; Union, 3; Wake, 4—16 counties.

DIPHTHERIA.—Beaufort, 3; Cumberland, 2; Duplin, 2; Durham, a

few; Edgecombe, 8; Forsyth, 1; Gates, 5; Granville, 2; Guilford, 2; Halifax, 5; Johnston, 2; Lenoir, 5; New Hanover, 3; Northampton, 5; Onslow, 2; Pamlico, 1; Person, 2; Randolph, 9; Richmond, 4; Surry, 5; Tyrrell, 1; Vance, several; Warren, 2; Watauga, 1; Wilkes, 8; Wake, 1; Yancey, 1—27 counties.

Typhoid Fever.—Alamance, several cases; Alexander, 40; Alleghany, 15; Ashe, prevalent in all portions; Bertie, 10; Bladen, 8; Brunswick, 2; Burke, has prevailed in all portions; Cabarrus, 6; Caldwell, a great many; Camden, 12; Carteret, 2; Caswell, 1; Catawba, many; Chatham, 10; Cherokee, 3; Cleveland, prevalent; Columbus, 5; Craven, 3; Cumberland, several; Davidson, 12; Davie, a few; Duplin, 20; Durham, a few; Edgecombe, prevalent in northwestern portions; Forsyth, several; Franklin, a few; Gaston, 10; Gates, 13; Graham, 7; Granville, 6; Greene, 15; Guilford, 6; Halifax, a great many; Harnett, 15; Haywood, 15; Henderson, 5; Hertford, 4; Hyde, a few; Iredell, 12; Jackson, 8; Johnston, 6 or 8; Jones, 10; Lee, 4; Lenoir, 6; Lincoln, 10; McDowell, 4; Macon, 4; Madison, 10; Martin, a few; Mecklenburg, a few; Mitchell, a few; Montgomery, 16; Nash, 7; New Hanover, 8; Northampton, several; Onslow, several; Pamlico, 6; Pasquotank, 1; Pender, 3; Person, 10; Pitt, 4; Polk, 4; Randolph, 20; Richmond, 1; Robeson, 55; Rowan, 4; Scotland, 12; Surry, 12; Swain, 2; Transylvania, a few; Union, several; Vance, several; Wake, 12; Warren, several; Washington, 3; Watauga, 20; Wayne, a few; Wilkes, 20; Yadkin, many; Yancey, 4—81 counties.

Malarial Fever.—Alamance, in all sections; Cabarrus, prevalent; Camden, prevalent; Currituck, a few; Davidson, in all parts; Halifax, prevalent; Jones, in all parts; Onslow, prevalent; Pender, prevalent; Randolph, several—10 counties.

Malarial Fever, Pernicious.—Bertie, many cases; Hyde, 4; Union, epidemic—3 counties.

Malarial Fever, Hemorrhagic.—Camden, 11; Hyde, 1; Pamlico, 1; Polk, 1—4 counties.

Pneumonia.—Caldwell, 1; Camden, 1; Catawba, a few; Chatham, 1; Cherokee, 1; Cleveland, a few; Duplin, 3; Durham, 2; Gaston, 1; Haywood, 2; Jackson, 3; McDowell, 1; Mitchell, a few; Montgomery, 1; New Hanover, 1; Onslow, 1; Pamlico, 1; Pitt, 2; Robeson, 10; Union, 2; Washington, 1; Watauga, 1; Yancey, 1—23 counties.

Cerebro-spinal Meningitis.—Carteret, 1; Chatham, 1; Cherokee, 2; Duplin, 1; Edgecombe, 1; Harnett, 1—6 counties.

Influenza.—Montgomery, 3 cases; Randolph, several.

Bilious Fever.—Randolph, 8 cases.

Acute Colds.—Brunswick, prevalent; Graham, in all parts; Richmond, in all parts.

Bowel Disease.—Currituck, in many parts; Macon, in all parts; Transylvania, in all parts.

Pallagra.—Richmond, 2 deaths.

CHOLERA, IN HOGS.—Jones, epidemic; Onslow, some; Pitt, epidemic.

DISTEMPER.—Cherokee, epidemic among horses. Many horses sick in Currituck.

STAGGERS.—Washington, a few cases.

No reports received from Anson, Clay, Dare, Moore, Orange, Perquimans, Rutherford, Rockingham, Stanly and Stokes.

No diseases reported from Buncombe, Chowan and Wilson.

SUMMARY OF MORTUARY REPORT FOR JULY, 1909.

	White.	*Colored.*	*Total.*
Aggregate population	141,100	91,200	232,300
Aggregate deaths	148	169	317
Representing temporary annual death rate per 1,000	12.4	22.2	16.3
Causes of Death.			
Typhoid fever	12	6	18
Malarial fever	3	1	4
Diphtheria	1	2	3
Whooping-cough	0	3	3
Measles	2	0	2
Pneumonia	6	6	12
Consumption	20	24	44
Brain diseases	9	9	18
Heart diseases	12	12	24
Neurotic diseases	0	4	4
Diarrheal diseases	14	27	41
All other diseases	64	68	132
Accident	3	6	9
Suicide	1	1	2
Violence	1	0	1
	148	169	317
Deaths under 5 years	35	55	90
Stillborn	10	27	37

Mortuary Report for July, 1909.

Towns and Reporters.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total. By Races.	Total. By Towns.	Deaths. Deaths under five years.	Deaths. Stillborn.
Asheville	W.	15,000	22,000	25.5	24.0	2	--	--	--	--	1	--	10	1	--	--	5	11	1	1	--	32	44	8	3
A. S. Halyburton, C.C.	C.	7,000		19.5		--	--	--	--	2	--	2	--	--	--	--	5	1	2	--	--	12		7	3
Charlotte	W.	18,000	30,000	12.6	------	1	--	1	--	--	--	1	3	--	2	--	1	9	1	--	--	19	39	1	1
Dr. F. O. Hawley.	C.	12,000		0.0		--	--	--	--	--	--	--	4	--	1	--	1	14	--	--	--	20		2	5
Durham	W.	12,000	18,000	15.0	21.9	3	--	--	--	--	1	2	2	3	2	--	--	2	--	--	--	15	33	--	1
Dr. T. A. Mann.	C.	6,000		36.0		2	--	--	--	--	--	--	3	1	1	1	1	9	--	--	--	18		--	6
Dunn	W.	2,000	2,500	6.0	9.6	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	2	--	--
Dr. I. F. Hicks.	C.	500		24.0		--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	1		1	--
Edenton	W.	3,000	6,000	3.9	6.0	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	1	3	--	--
Dr. H. M. S. Cason.	C.	3,000		7.9		--	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	2		--	--
Elizabeth City	W.	6,000	10,000	3.9	7.2	1	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	2	6	--	1
Dr. C. B. Williams.	C.	4,000		12.0		--	--	--	--	--	--	--	1	--	--	--	2	1	--	--	--	4		3	--
Fayetteville	W.	5,000	8,500	16.8	18.2	--	--	--	--	--	--	1	3	--	1	--	--	2	--	--	--	7	13	2	--
Dr. W. S. Jordan.	C.	3,500		20.5		1	--	--	--	--	--	--	1	1	--	--	3	--	--	--	--	6		3	--
Goldsboro	W.	6,000	10,000	3.9	8.4	--	--	--	--	--	--	--	1	1	1	--	--	1	--	--	--	4	7	--	1
Robt. A. Creech, Esq.	C.	4,000		9.0		--	--	--	--	--	--	1	--	--	--	--	--	2	--	--	--	3		2	--
Greensboro	W.	10,000	16,000	13.2	13.5	--	--	--	--	--	--	1	--	--	2	--	5	3	--	--	--	11	18	4	--
Dr. Edmund Harrison.	C.	6,000		13.9		--	--	--	--	--	--	--	1	--	1	--	2	3	--	--	--	7		4	--
Marion	W.	1,500	1,600	7.9	7.4	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1	1	1	1
Dr. Guy S. Kirby.	C.	100		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	1
New Bern	W.	7,500	15,000	6.3	19.9	1	--	--	--	--	--	--	--	--	1	--	--	2	--	--	--	4	25	--	--
Dr. J. F. Patterson	C.	7,500		32.4		--	--	--	--	--	--	2	3	1	4	--	--	11	--	--	--	21		5	1
Oxford	W.	2,000	4,000	6.0	6.0	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	2	--	--
Dr. S. D. Booth.	C.	2,000		6.0		--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	1		--	--
Raleigh	W.	14,000	25,000	11.0	14.8	--	--	1	--	--	--	--	1	1	1	--	1	7	1	--	--	13	31	3	--
C. M. Walters, H. O.	C.	11,000		19.5		1	--	--	--	--	--	1	4	--	4	--	1	7	--	--	--	18		6	4
Rocky Mount	W.	5,000	8,000	4.8	6.0	1	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	2	4	--	--
Dr. I. P. Battle.	C.	3,000		7.9		--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2		--	--
Salem	W.	3,000	3,400	15.9	17.2	1	--	--	--	--	--	--	--	--	--	--	--	3	--	--	--	4	5	--	--
F. W. Stockton, Clerk.	C.	400		30.0		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Salisbury	W.	5,000	8,000	14.4	15.0	--	--	--	--	--	--	--	--	--	--	--	--	6	--	--	--	6	10	5	--
C. W. Woodson, H. O.	C.	3,000		15.9		1	--	--	--	--	--	--	--	--	--	--	--	2	1	--	--	4		--	--
Southport	W.	1,000	1,600	12.0	30.0	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1	4	--	--
Dr. J. A. Dosher.	C.	600		60.0		--	--	--	--	--	--	--	1	--	--	1	1	--	--	--	--	3		2	--
Weldon	W.	800	1,400	15.0	34.2	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	4	1	--
W. W. Wiggins, Mayor.	C.	600		60.0		--	--	--	--	--	--	--	--	--	--	--	--	2	1	--	--	3		--	--
Wilmington	W.	16,000	30,000	14.1	20.4	1	--	1	--	--	--	--	--	3	1	--	--	12	--	--	1	19	51	8	2
Jos. Akerman, H. O.	C.	14,000		18.8		1	--	1	--	--	--	--	2	4	1	3	9	8	2	1	--	32		15	7
Wilson	W.	3,800	6,800	3.1	8.7	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	5	1	--
Dr. W. S. Anderson.	C.	3,000		15.9		--	--	--	2	--	--	--	--	--	--	--	--	2	--	--	--	4		4	--
Winston	W.	12,000	20,000	3.0	6.0	--	--	--	--	--	--	--	--	--	--	--	1	2	--	--	--	3	10	1	--
Dr. W. N. Dalton.	C.	8,000		10.5		--	--	--	--	--	--	--	3	1	--	--	1	2	--	--	--	7		1	1

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance.....Dr. H. M. Montgomery.
Alexander.....Dr. B. O. Choate.
Alleghany.....Dr. Robert Thompson.
Anson.....Dr. E. S. Ashe.
Ashe.....Dr. J. C. Testerman.
Beaufort.....Dr. P. A. Nicholson.
Bertie.....Dr. John L. Pritchard.
Bladen.....Dr. L. B. Evans.
Brunswick.....Dr. J. Arthur Dosher.
Buncombe.....Dr. D. E. Sevier.
Burke.....Dr. J. R. Anderson.
Cabarrus.....Dr. J. M. Wallace.
Caldwell.....Dr. C. L. Wilson.
Camden.....Dr. C. G. Ferebee.
Carteret.....Dr. W. E. Headen.
Caswell.....Dr. S. A. Malloy.
Catawba.....Dr. T. C. Blackburn.
Chatham.....Dr. L. E. Farthing.
Cherokee.....Dr. J. F. Abernethy.
Chowan.....Dr. H. M. S. Cason.
Clay.....Dr. J. M. Sullivan.
Cleveland.....Dr. T. E. McBrayer.
Columbus.....Dr. H. B. Maxwell.
Craven.....Dr. Joseph F. Rhem.
Cumberland.....Dr. A. S. Rose.
Currituck.....Dr. H M. Shaw.
Dare.....
Davidson.....Dr. E. J. Buchanan.
Davie.....Dr. M. D. Kimbrough.
Duplin.....Dr. John A. Ferrell.
Durham.....Dr. N. M. Johnson.
Edgecombe.....Dr. Spencer P. Bass.
Forsyth.....Dr. J. K. Pepper.
Franklin.....Dr. R. F. Yarborough.
Gaston.....Dr L. N. Glenn.
Gates.....Dr. Geo. D. Williams.
Graham.....Dr. M. T. Maxwell.
Granville.....Dr. S. D. Booth.
Greene.....Dr. W. B. Murphy.
Guilford.....Dr. Edmund Harrison.
Halifax.....Dr. I. E. Green.
Harnett.....Dr. L. J. Arnold.
Haywood.....Dr. J. R. McCracken.
Henderson.....Dr. J. G. Waldrop.
Hertford.....Dr. J. H. Mitchell.
Hyde.....Dr. R. E. Windley.
Iredell.....Dr. M. R. Adams.
Jackson.....Dr. A. S. Nichols.
Johnston.....Dr. L. D. Wharton.
Jones.....Dr. A. F. Hammond.
Lee.....Dr. J. P. Monroe.
Lenoir.....Dr. N. A. Whitaker.
Lincoln.....Dr. J. W. Saine.
McDowell.....Dr. Geo. S. Kirby.
Macon.....Dr. S. H. Lyle.
Madison.....Dr. W. J. Weaver.
Martin.....Dr. W. E. Warren.
Mecklenburg.....Dr. C. S. McLaughlin.
Mitchell.....Dr. Virgil R. Butt.
Montgomery.....Dr. C. Deligney.
Moore.....Dr. Gilbert McLeod.
Nash.....Dr. J. P. Battle.
New Hanover.....Dr. W. D. McMillan.
Northampton.....Dr. H. W. Lewis.
Onslow.....Dr. Cyrus Thompson
Orange.....Dr. C. D. Jones.
Pamlico.....Dr. Daniel A. Dees.
Pasquotank.....Dr. H. T. Aydlett.
Pender.....Dr. Robt. H. Bradford.
Perquimans.....Dr. T. P. McMullen.
Person.....Dr. W. T. Long.
Pitt.....Dr. W. M. Fountain.
Polk.....Dr. W. R. Engel.
Randolph.....Dr. J. V. Hunter.
Richmond.....Dr. N. C. Hunter.
Robeson.....Dr. W. A. McPhail.
Rockingham.....Dr. Sam Ellington.
Rowan.....Dr. M. L. Smoot.
Rutherford.....Dr. E. B. Harris.
Sampson.....Dr. A. M. Cooper.
Scotland.....Dr. K. A. Blue.
Stanly.....Dr. J. N. Anderson.
Stokes.....
Surry.....Dr. John R. Woltz.
Swain.....Dr. J. A. Cooper.
Transylvania.....Dr. Goode Cheatham.
Tyrrell.....Dr. J. L. Spruill.
Union.....Dr. Henry D. Stewart.
Vance.....Dr. E. F. Fenner.
Wake.....Dr. J. J. L. McCullers.
Warren.....Dr. M. P. Perry.
Washington.....Dr. W. H. Ward.
Watauga.....Dr. J. M. Hodges.
Wayne.....Dr. T. M. Bizzell.
Wilkes.....Dr. John Q. Myers.
Wilson.....Dr. W. S. Anderson.
Yadkin.....Dr. S. L. Russell.
Yancey.....Dr. W. B. Robertson.

BULLETIN

Dr I H Manning

NORTH CAROLINA BOARD OF HEALTH

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VOL. XXIV. SEPTEMBER, 1909. No. 6.

THE LAWS PROTECTING PUBLIC WATER SUPPLIES.

A short experience with the enforcement of law soon reveals many imperfections in this human standard of justice. So many laws are unenforcible on account of loopholes, or for the lack of suitable penalties. Such legislation is either the result of carelessness, or designed to appease, by subterfuge, a popular demand for laws which the law-making body for their own reasons do not wish to enact.

Standing out prominently, characterized by a remarkable absence of the above imperfections, are the laws for the protection of our public water supplies. These laws have not only been carefully worded to the exclusion of all loopholes, but they have been made ample and enforcible by the attachment of suitable penalties. Their enforcibleness can have but one meaning—the importance that the people attach to the protection of their water supplies. Their enforcement has been entrusted to a special commission, the State Board of Health. The State Board of Health, fully realizing the sacredness of this trust, and knowing that no lack of power may be pleaded as an excuse for permitting the infringement of these laws, has no other course open to it than to insist upon the careful compliance of all parties concerned with their requirements.

In order that the State Board of Health may properly care for the various water supplies, it is necessary that samples of their

water be sent, regularly and promptly every month, to the State Laboratory of Hygiene for examination. It is also necessary that sanitary inspection of the watersheds be made regularly, as required by law. A few water companies have not been as attentive in the past to these legal requirements as they should have been. So far we have dealt leniently with these companies, preferring the charitable attitude of regarding them as ignorant of important amendments of the law made by the last Legislature. In the future we will insist on strict obedience to all laws protecting our public water supplies.

Of great importance to the State Board of Health for an intelligent oversight of the watersheds, and the prompt detection of a threatened danger, are the duplicate plans and surveys of the watersheds, required by the last Legislature to be filed with the Secretary by the first of October.

As soon as these plans and surveys are in we will distribute to the water companies "Circular B," "Circular C," and "Circular D."

"Circular B" is to be distributed by the inspector to the residents on the watershed. In it they will find the legal requirements for the care of their premises.

"Circular C" gives directions to the inspector in regard to the scope and details of the inspection.

"Circular D" is a blank form to be filled in by the inspector, certified to, and returned to this office.

The value of the sanitary care of watersheds made possible through these inspections cannot be overestimated.

This subject is so ably discussed in an article appearing in the *Bulletin of the New York Board of Health*, that we take pleasure in reproducing it in this issue of the BULLETIN.

SANITARY PATROL OF WATERSHEDS.

By THEODORE HORTON, Chief Engineer and Director of the Division of Sanitary Engineering, New York State Department of Health.

In the State of New York there are in round numbers some 350 public water supplies derived from surface or underground sources. Of these supplies about 200 are derived from driven wells or natural springs; about 50 from lakes, ponds or artificial reservoirs; and about 100 from rivers, brooks and other running streams.

The protection of these supplies against pollution and possible infection is a duty of grave importance, one which unfortunately is not always fulfilled with the responsibility and exactness that its importance demands. Nor is this to be wondered at when we consider that these supplies are generally controlled by civic boards or private water companies preoccupied by numerous duties of an executive or

administrative nature; and these restricted for the most part to the territory within the limits of their distribution or piping systems. But however multifarious and pressing these duties may be, there can be no adequate or extenuating excuse for neglect or failure to exert every possible effort to prevent a contamination of the watershed which furnishes the water for these supplies.

It occasionally happens, however, that with the best apparent intention and the exertion of conscientious efforts and the expenditure of labor and money, the measures often followed prove ineffective, either through a lack of adequate knowledge of sanitary principles or a lack of that necessary foresight and action which at a critical time might have averted an epidemic. It is, then, with the purpose of pointing out to the practical waterworks superintendent under whose immediate supervision all protective measures are executed, and to the health officer to whose general custody the public health of the entire community is intrusted, some of the more important factors and duties involved in an efficient sanitary patrol of a watershed, that the following discussion is offered.

In the first place, systematic inspections are absolutely essential if a thorough protection of the water supply is to be accomplished, for, unless it is thorough, the very end which is sought may be defeated. These inspections should be made as often as once each month on smaller watersheds, and in the "danger zones" of the larger ones, and never less than four times a year. In the latter case the times of inspections should be so selected as to include those seasons when pollution is likely to be more intense, such as, for instance, during the late winter or early spring, when the melting snow and ice may wash a large amount of pollution over the frozen and impervious soil into the stream, which, being swollen, may carry infection directly and swiftly to the intake. Again it is well to make an inspection during the season when the farmers are fertilizing their fields by spreading manure or night soil upon them. Or if the watershed is frequented by summer visitors, an inspection at that time may reveal overflowing cesspools or possibly unexpected temporary pollution.

It is impossible to formulate a set of rules for guidance in this class of work applicable to all watersheds, for each watershed represents a special case depending upon local conditions. We may say in general, however, that the attention of an inspector should be focused upon two objective points; first, the detection and removal of cases of pollution; and second, the detection and proper quarantine of any positive or suspected cases of typhoid fever or other waterborne diseases on the watershed. Even though no cases of pollution exist, the danger from the presence of a typhoid fever case should be a signal of warning, and a sharp espionage should be maintained to see that every barricade is set up to prevent any possible further spread of the disease and possible infection of the supply. These

precautions should not be taken on faith, but should be carefully and frequently inquired into and the health officer promptly notified.

It is assumed that the superintendent or the inspector is sufficiently familiar with the customary methods and arrangement of means for the disposal of human wastes and refuse to enable him to search out all points of pollution. These questions of fact are relatively a simple matter. The more difficult questions which may and probably will arise, are as to what extent do any conditions found to exist create a menace to the supply, and what means are at his disposal to remedy these conditions.

As to the question of possible menace there may be found many conditions about which there will be little or no doubt, e. g., either from the character of the waste material or the method or manner in which this may reach the water supply, there will be no doubt as to whether the conditions will or will not be a menace to the supply. On the other hand there may be found cases of pollution wherein a decision may be very difficult, e. g., it may be a questionable location of a pig pen or a pile of manure or garbage; or the location of a privy or cesspool; or again it may be a question of ice cutting or bathing; or of the spreading of night soil upon the ground for fertilizing, or of a cemetery. The question as to what extent these conditions may create a menace to a water supply is not always simple of solution; and even when there may be little scientific doubt as to the danger of any particular case it is frequently a difficult matter in practice to remove or correct the condition.

Very fortunately for the local water boards and companies, there is provided by the State Department of Health, acting under statutory law, means which make the solution of these questions and the abatement of the conditions much simpler than could be possible with the more ordinary means and common law locally available. The Public Health Law provides that, when application is duly made by a local board or company having charge of a water supply, the State Commissioner of Health may formulate rules and regulations for the protection of the watershed. These rules and regulations are prepared only after a careful and detailed examination of the watershed by one of the sanitary engineers of the Department; and the various provisions contained in them as to what matters constitute pollution, and under what conditions and limiting distances pollution of different classes shall be permitted in the vicinity of streams or watercourses, are all definitely and specifically embodied in the rules.

The fact that these rules and regulations are specific in their nature—in fact, apparently almost arbitrary in order to be specific—makes the work of the local superintendent and inspector relatively simple and eliminates many questions of doubt which otherwise might arise. In fact, these rules serve in nature not only as a health ordinance, similar to those of every local health board, but they are usually so definite and explicit in their description of different classes

of waste matter, and so clear as to the relative danger of each class as a source and spread of infection, that they afford at the same time a code of instruction, or a manual, to guide the superintendent or his inspector in his field work.

It was thought not very many years ago that organic pollution of any nature was a menace to a water supply, and the rules generally in force in those days seemed to be framed with this view in mind. At the present time, however, and in view of our more enlightened knowledge of the germ theory of causation and transmission of diseases, we are forced to take a more rational view, and distinguish sharply between those classes of pollution that are fundamental causes of disease transmission and those other classes which give rise only to offensive odors, or other objectionable conditions, but which have no direct relation whatever to the causation or transmission of disease. I say direct relation, for almost any organic matter that has no inhibiting chemicals or poisons in it may furnish food for disease germs and consequently aid in the multiplication, or at least prolongation of the life of these germs.

In short, one must always bear in mind in matters of this kind, not in an incredulous way, but in a clear and practical way, that typhoid fever can be transmitted only by means of specific typhoid bacilli. These bacilli are human parasites, which develop and multiply in all probability only within the human system, and a typhoid infected water supply can only become infected by typhoid fever bacilli that have lived and developed in the human body and left their host, and, through carelessness or ignorance, escape through the successive barriers that may or should have been set up and carefully maintained by the attending physician in the sick room and the household, or by the health officer or the waterworks superintendent or other sanitary agent on the watershed, and find their way into the water supply.

In more specific terms, the waterworks superintendent or sanitary officer in patrol of a supply must learn to distinguish between, and take consistent action upon, those classes of pollution such as pig pens and manure piles, and piles of rotting vegetables, or fruit, which in themselves are harmless as a source of transmission of disease; and those other classes of wastes derived from human origin such as discharges or leakages from sewer drains, cesspools and privy vaults. The former may be unsightly and offensive to the smell and truly objectionable from an æsthetic standpoint, and the public may through ignorance denounce them as a danger and menace to life; yet it is the latter, through their ofttimes hidden and surreptitious channels of discharge, that contaminate and occasionally infect a water supply and give rise to the dreaded epidemic. Let it not be forgotten either that sometimes the harmless appearing manure pile may be the receptacle of typhoid dejecta, with all the hidden danger this implies, or that a newly plowed field may have been fertilized with manure of man as well as beast, and that the rains of spring may wash this manure with its infected material directly into the water supply.

Because certain matters of organic nature are harmless as a source or means of infection, and others of human origin are harmful, it must not be inferred that any license or tolerance should be given the existence or maintenance of pig pens, manure piles and garbage near a watercourse of a supply, for they must not be. A water supply should be not only "safe" but it should also be "wholesome" and clean—as free from turbidity, color, odor and pollution of any character as it is possible to secure and maintain. Some of these characteristics can only be secured by purification, but with a surface water generally satisfactory with regard to turbidity and color, it lies largely with the waterworks management to secure a freedom from odors and pollution. This implies a restriction or prohibition against any act or condition that allows waste matter of any character to reach the watercourses of a supply. The restriction against all wastes of human origin is then absolutely mandatory for the full protection of health and life of those using the supply, while the restriction against all other wastes or pollution is essential to the wholesomeness, cleanliness and attractiveness of the supply.

Although the foregoing statements apply more especially to water supplies taken from surface sources, they are also applicable in a large measure to supplies taken from underground sources. In the latter cases, however, the channels by which the pollution may reach the underground supply are so varied and variable and so difficult of detection, and depend so largely upon local underground conditions that cannot be learned by inspection, that rules and regulations for their protection become impracticable. This does not mean that they cannot be safeguarded nor that sanitary patrol should not be instituted. Quite the contrary, for it is the very uncertainty and difficulty of detecting the real sources of pollution that make precautions all the more necessary. The principles of protection and methods of patrolling the watershed tributary to the wells or springs are the same as for surface supplies, the channels of pollution taking similar, though not identical, courses to those on the surface. The underground pollution, passing through the soil, may or may not become thoroughly purified, depending upon the geological formation and other local conditions, and it is this uncertainty that frequently requires the evidence of chemical and biological analyses to settle. Except under unusual conditions, however, a knowledge of surface conditions of a watershed will usually be sufficient to indicate any danger from underground pollution.

There are a few points of especial importance in care and patrol of underground supplies that should be pointed out, and the neglect of them has occasionally given rise to serious results. The first point to be borne in mind is that the most probable and serious source of pollution is from the surface. Polluted streams may pass near or over wells or springs, or surface washings which may be and frequently are polluted, may enter the top of a well or travel along the driven pipe; in fact, many other possible means of surface pollution

may directly reach the underground supply, so that the first and most important step in safeguarding these supplies is to so protect the surface of the ground immediately adjacent to the wells or springs in a manner that will prevent any possible surface pollution from reaching the water.

The next danger to these underground supplies is of course subsoil pollution. Physical conditions will generally indicate the possibility of dangerous pollution. If the ground is sandy and filtration good, there will be little danger of any contamination of supply if the sources are few and remote. If, however, the territory is rocky, or if there are sources of pollution in proximity to the supply, the case is more difficult and uncertain and it will usually be necessary to resort to analytical evidence. In these cases the analyses may in a measure be considered as taking the place of sanitary inspections of the watershed, and should be made with the same frequency as these surface inspections; for well water may vary with respect to pollution from season to season according to local characteristics of the soil. In general, then, we may say in regard to underground supplies that precautions against surface pollution, the removal of all sources of underground pollution in the neighborhood of the wells or springs, the frequent analyses of water in cases where conditions are doubtful, and the ever careful espionage and action in case of any positive or suspected cases of water-borne diseases on the watershed tributary to the wells or springs, may be considered the keynotes to successful protection.

A word should be said in regard to those supplies taken from large streams and rivers having large watersheds. Many of them are so large as to make efficient patrol expensive or impracticable. When we consider that any direct pollution of human origin is a menace to a supply, the futility of effectively patrolling a large watershed having a number of communities situated upon it is apparent. The problem in these cases comes down to one largely of chance, which, unfortunately, has been taken by many municipalities with disastrous results. The epidemics in the cities on the Merrimac, Androscoggan, Hudson and Black rivers are ample testimony of the truth of this principle, and the protection by means of water purification adopted by many of the suffering communities seems to have given the final proof that effective patrol is not only impracticable, but that the only full protection in such cases is purification.

In conclusion, then, it may be said:

(1) That where patrol is possible and practicable, which is usually the case with all surface supplies having watersheds of moderate areas, whether surface or ground water supplies, it must be done with regularity and thoroughness if it is to be effective.

(2) That prohibitions against all pollution of human origin are absolutely essential to a full protection of a supply against disease infection, and prohibitions against all pollution of any character are necessary to preserve a supply in a clean, wholesome and otherwise satisfactory condition.

(3) That the means or channels of infection are almost innumerable, and that it is only by a careful study of the possible means of transmission of infection, and of the local conditions of a watershed, that the danger spots thereon can be discovered and either eliminated or controlled.

(4) That chemical and biological analyses afford valuable evidence of the pollution, and should be occasionally and regularly made for all supplies, and at frequent intervals where any doubt exists as to presence or character of the pollution.

(5) That house-to-house inspections should be made at frequent intervals to discover any positive or suspected cases of typhoid fever or other water-borne diseases, and, should any cases be discovered, special and immediate steps should be taken to institute a quarantine and set up barriers that will prevent any possible infection reaching the supply.

I believe that if the sanitary patrol of our watersheds be carried out with regularity and thoroughness, and with especial attention given to the points or factors suggested above, the prevalence of water-borne typhoid fever and other diseases, unfortunately too common in many of our communities, will not only be greatly reduced but largely eliminated.

REVIEW OF DISEASES FOR AUGUST, 1909.

EIGHTY-FOUR COUNTIES REPORTING.

Ninety-seven out of ninety-eight counties have county superintendents of health.

Except in case of the more contagious diseases, the superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of noncontagious diseases to him.

Where the number of cases is not given, or the prevalence of the disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of August the following diseases have been reported from the counties named:

Smallpox.—Camden; Craven, 2; Cumberland, 1; Davie, 1; Duplin, 10; Jones, 8; Lenoir, 4; Wake, 1; Watauga, 8; Yancey, 2—10 counties.

Measles.—Carteret, few; Caswell, several; Catawba, few; Durham, few; Martin, 1; Mecklenburg; Randolph, 3—7 counties.

Whooping-cough.—Alexander, 20; Bertie, 4; Caldwell, 58; Caswell, several; Catawba, many; Cleveland, few; Cumberland, very few; Davidson, 25; Duplin, 6; Durham, few; Forsyth, few; Graham, several; Granville, 4; Harnett, several; Haywood, few; Iredell, 2;

Johnston, few; McDowell, 2; Mecklenburg; Montgomery, 5; Polk, 2; Robeson, 11; Scotland, 12; Vance, few; Wake, 8; Watauga, 2; Wilkes, few—27 counties.

Scarlatina.—Alamance, 35; Burke, several; Caldwell, 32; Caswell, 9; Chatham, 1; Cleveland, few; Durham, few; Edgecombe, 1; Forsyth, 3; Gaston, several; Granville, 8; Greene, 3; Guilford, 1; Halifax, 2; Harnett, 12; Haywood, few; Henderson, 2; Hertford, 1; Johnston, epidemic; Jones, 2; Lincoln, 2; Martin, 20; Mecklenburg; Nash, 1; New Hanover, 1; Robeson, 1; Rowan, 1; Sampson, 2; Union, 12; Vance, 4; Wake, 2; Watauga, 2; Wilson, 1; Yadkin, 1—34 counties.

Diphtheria.—Alamance, 20; Beaufort, 10; Bertie, 10; Buncombe, 3; Cabarrus, 3; Caldwell, 1; Carteret, 2; Caswell, 4; Craven, 2; Cumberland, 1; Davie, 1; Duplin, 12; Durham, 2 or 3; Edgecombe, 3; Forsyth, 2; Gaston, 1; Gates, 2; Granville, 15; Greene, 15; Guilford, 4; Halifax, 12; Harnett, several; Haywood, 5; Henderson, 3; Hyde, several; Lenoir, 10; Martin, 1; Mecklenburg; Montgomery, 1; Nash, 5; New Hanover, 5; Northampton, numerous; Onslow, 12; Person, 3; Randolph, 2; Robeson, 1; Sampson, 4; Union, 1; Vance, several; Wake, 2; Warren, 10; Watauga, 2; Wayne, few; Wilkes, few; Wilson, 3—45 counties.

Typhoid Fever.—Alamance, several; Alexander, 20; Alleghany, 3; Ashe, many; Beaufort, 3; Bertie, very many; Bladen, about 20; Brunswick, 7; Burke, several; Cabarrus, several; Caldwell, several; Camden; Carteret, several; Caswell, 1; Catawba, few; Chatham, 5; Cherokee, 1; Clay, 5; Cleveland, good many; Craven, 2; Cumberland, few; Davidson, 25; Davie, few; Duplin, 18; Durham, 3 or 4; Forsyth, several; Gaston, several; Gates, 6; Graham, 6; Granville, 6; Greene, 20; Guilford, 7; Halifax, some; Harnett, several; Haywood, 6; Henderson, 19; Hertford, 5; Hyde, few; Iredell, several; Johnston, 6 or 8; Jones, 5; Lee, 3; Lenoir, 10; McDowell, 6; Madison, 10; Mecklenburg; Montgomery, 2; Nash, 9; New Hanover, 7; Northampton, some; Onslow, several; Pamlico, 5; Pasquotank, 1; Pender, several; Person, 5; Pitt, 2; Polk, 2; Randolph, 8; Robeson, 15; Rowan, several; Sampson, few; Scotland, 6; Surry, 10; Swain, 2; Transylvania, few; Tyrrell, 1; Union, 15; Vance, few; Wake, 10; Warren, few; Washington, 2; Watauga, 12; Wayne, very few; Wilkes, 12; Yadkin, several; Yancey, 1—76 counties.

Malarial Fever.—Alamance; Brunswick; Cabarrus; Currituck; Halifax; Jones; New Hanover; Northampton; Onslow; Pamlico; Pender, many; Perquimans; Pitt, 1; Robeson; Washington—15 counties.

Malarial Fever (Pernicious).—Alleghany, 1; Chatham, 1; Hertford, 1; Hyde, few; Johnston, few; Martin, 1; Northampton, 1; Pamlico, 2—8 counties.

Malarial Fever (Hemorrhagic).—Bertie, 1; Edgecombe, 1; Gates, 2; Hyde, 1; Martin, 1; Northampton, 3; Pasquotank, 3; Union, 2—8 counties.

PNEUMONIA.—Camden, 4; Chatham, 1; Duplin, 3; Gaston, 1; Harnett, 1; Haywood, 2; Henderson, 2; Iredell, 3; Johnston, 1; McDowell, 1; Martin, 1; New Hanover, 2; Northampton, 1; Pamlico, 1; Randolph, 2; Robeson, 6; Scotland, 2; Wake, 2—18 counties.

CEREBRO-SPINAL MENINGITIS.—Camden, 1; Caswell, 1; Cherokee, 2; Gaston, 1; Martin, 1—5 counties.

PELLAGRA.—Bladen, 2; Caswell, 1; Guilford, 2; Lenoir, 4; Robeson, 4; Warren—6 counties.

MUMPS.—Beaufort.

TONSILITIS.—Brunswick.

ERYSIPELAS.—Onslow.

CHICKEN CHOLERA.—Hertford.

STAGGERS AND MENINGITIS AMONG DOMESTIC ANIMALS.—Hyde.

HOG CHOLERA.—Northampton; Onslow; Pitt; Hertford—4 counties.

DISTEMPER AMONG DOMESTIC ANIMALS.—Watauga.

SUMMARY REPORT FOR AUGUST, 1909.

	White.	*Colored.*	*Total.*
Aggregate population	142,000	91,150	233,150
Aggregate deaths	142	136	278
Representing temporary annual death rate per 1,000	12.	17.8	14.2
Causes of Death.			
Typhoid fever	9	9	18
Scarlet fever	0	1	1
Malarial fever	1	7	8
Diphtheria	1	0	1
Pneumonia	1	0	1
Consumption	22	25	47
Brain disease	9	3	12
Heart disease	9	8	17
Neurotic diseases	1	2	3
Diarrheal diseases	19	28	47
All other diseases	58	43	101
Accidents	2	3	5
Violence	1	3	4
	133	132	265
Deaths under 5 years	41	52	93
Stillborn	15	24	39

Mortuary Report for August, 1909.

Towns and Reporters.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total Deaths. By Races.	Total Deaths. By Towns.	Deaths under five years.	Stillborn.
Asheville	W.	15,000	22,000	12.0	14.1	1	--	--	--	--	--	--	4	1	1	--	3	4	1	--	--	15	27	2	1
A. S. Halyburton, C.C.	C.	7,000		20.5		1	--	--	--	--	--	2	2	--	1	--	2	3	1	--	--	12		3	2
Charlotte	W.	18,000	30,000	10.5	14.7	--	--	--	--	--	--	--	4	1	1	--	2	7	1	--	--	16	37	7	3
Dr. F. O. Hawley.	C.	12,000		21.0		1	--	3	--	--	--	--	3	--	--	--	1	12	1	--	--	21		3	4
Dunn	W.	2,000	2,500	0.0	14.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	--	--
Dr. I. F. Hicks.	C.	500		72.0		--	--	--	--	--	--	--	1	--	--	1	--	--	--	--	1	3		1	--
Durham	W.	13,000	20,000	18.4	12.7	4	--	--	--	--	--	--	4	1	3	--	4	6	--	--	--	22	32	4	2
Dr. T. A. Mann.	C.	7,000		17.0		1	--	1	--	--	--	--	2	--	--	--	3	3	--	--	--	10		4	2
Edenton	W.	3,000	6,000	3.9	18.0	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	4	--	--
Dr. H. M. S. Cason.	C.	3,000		12.0		--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	1	3		--	--
Elizabeth City	W.	6,000	10,000	12.0	20.4	--	--	--	--	--	--	--	--	--	1	--	1	4	--	--	--	6	17	1	--
Dr. C. B. Williams.	C.	4,000		33.0		1	--	--	--	--	--	--	1	--	--	--	4	4	--	--	1	11		7	--
Fayetteville	W.	5,000	8,500	19.2	21.3	--	--	--	--	--	--	--	--	2	1	--	1	3	--	--	1	8	15	2	--
Dr. W. S. Jordan.	C.	3,500		24.0		--	--	--	--	--	--	--	4	--	1	--	2	--	--	--	--	7		2	--
Greensboro	W.	10,000	16,000	10.8	27.0	2	--	--	--	--	--	2	1	2	1	--	1	5	--	--	--	9	36	7	--
Dr. Edmund Harrison.	C.	6,000		54.0		2	--	--	--	2	--	2	3	2	1	--	3	12	--	--	--	27		7	--
Goldsboro	W.	6,600	11,000	7.2	9.7	--	--	--	--	--	--	--	1	--	--	--	2	1	--	--	--	4	9	2	--
Robt. A. Creech, Esq.	C.	4,400		13.5		--	--	--	--	--	--	1	--	--	--	--	1	3	--	--	--	5		3	1
Marion	W.	1,600	1,750	1.4	13.2	--	--	--	--	--	--	--	--	--	1	--	--	1	--	--	--	2	2	--	1
Dr. Guy S. Kirby.	C.	150		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Oxford	W.	2,000	4,000	0.0	6.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--
Dr. S. D. Booth.	C.	2,000		12.0		--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--	2		2	1
Raleigh	W.	14,000	25,000	17.0	16.8	1	--	1	--	--	--	--	3	1	--	--	--	14	--	--	--	20	35	3	4
C. M. Walters, H. O.	C.	11,000		16.3		--	--	--	--	--	--	1	2	--	4	--	1	6	1	--	--	15		2	5
Rocky Mount	W.	5,000	8,000	0.0	1.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--
Dr. I. P. Battle.	C.	3,000		3.9		--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1		--	--
Salisbury	W.	8,000	10,000	7.4	9.6	--	--	--	--	--	--	--	--	--	--	1	--	4	--	--	--	5	8	3	--
C. W. Woodson, H. O.	C.	2,000		18.0		1	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	3		--	--
Southport	W.	1,000	1,600	0.0	7.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--
Dr. J. A. Dosher.	C.	600		19.9		--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1		--	--
Wilmington	W.	16,000	30,000	13.4	19.9	1	--	--	--	--	--	1	3	1	1	--	3	8	--	--	--	18	50	6	3
Jos. Akerman, H. O.	C.	14,000		27.3		2	--	3	--	--	--	1	6	3	1	1	7	8	--	--	--	32		14	8
Wilson	W.	3,800	6,800	18.8	17.6	--	--	--	1	--	--	--	1	2	--	--	--	2	--	--	--	6	10	1	--
Dr. W. S. Anderson.	C.	3,000		15.9		1	--	--	--	--	--	--	2	--	--	--	1	--	--	--	--	4		1	1
Winston	W.	12,000	20,000	9.9	10.2	2	--	--	--	--	--	--	2	--	--	--	3	3	--	--	--	10	17	3	1
Dr. W. N. Dalton.	C.	8,000		10.4		1	--	--	--	--	--	--	2	--	--	--	3	1	--	--	--	7		3	--

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance	Dr. H. M. Montgomery.
Alexander	Dr. B. O. Choate.
Alleghany	Dr. Robert Thompson.
Anson	Dr. E. S. Ashe.
Ashe	Dr. J. C. Testerman.
Beaufort	Dr. P. A. Nicholson.
Bertie	Dr. John L. Pritchard.
Bladen	Dr. L. B. Evans.
Brunswick	Dr. J. Arthur Dosher.
Buncombe	Dr. D. E. Sevier.
Burke	Dr. J. R. Anderson.
Cabarrus	Dr. J. M. Wallace.
Caldwell	Dr. C. L. Wilson.
Camden	Dr. C. G. Ferebee.
Carteret	Dr. W. E. Headen.
Caswell	Dr. S. A. Malloy.
Catawba	Dr. T. C. Blackburn.
Chatham	Dr. L. E. Farthing.
Cherokee	Dr. J. F. Abernethy.
Chowan	Dr. H. M. S. Cason.
Clay	Dr. J. M. Sullivan.
Cleveland	Dr. T. E. McBrayer.
Columbus	Dr. H. B. Maxwell.
Craven	Dr. Joseph F. Rhem.
Cumberland	Dr. A. S. Rose.
Currituck	Dr. H. M. Shaw.
Dare	
Davidson	Dr. E. J. Buchanan.
Davie	Dr. M. D. Kimbrough.
Duplin	Dr. John A. Ferrell.
Durham	Dr. N. M. Johnson.
Edgecombe	Dr. Spencer P. Bass.
Forsyth	Dr. J. K. Pepper.
Franklin	Dr. R. F. Yarborough.
Gaston	Dr L. N. Glenn.
Gates	Dr. Geo. D. Williams.
Graham	Dr. M. T. Maxwell.
Granville	Dr. S. D. Booth.
Greene	Dr. W. B. Murphy.
Guilford	Dr. Edmund Harrison.
Halifax	Dr. I. E. Green.
Harnett	Dr. L. J. Arnold.
Haywood	Dr. J. R. McCracken.
Henderson	Dr. J. G. Waldrop.
Hertford	Dr. J. H. Mitchell.
Hyde	Dr. R. E. Windley.
Iredell	Dr. M. R. Adams.
Jackson	Dr. A. S. Nichols.
Johnston	Dr. L. D. Wharton.
Jones	Dr. A. F. Hammond.
Lee	Dr. J. P. Monroe.
Lenoir	Dr. N. A. Whitaker.
Lincoln	Dr. J. W. Saine.
McDowell	Dr. Geo. S. Kirby.
Macon	Dr. S. H. Lyle.
Madison	Dr. W. J. Weaver.
Martin	Dr. W. E. Warren.
Mecklenburg	Dr. C. S. McLaughlin.
Mitchell	Dr. Virgil R. Butt.
Montgomery	Dr. C. Deligney.
Moore	Dr. Gilbert McLeod.
Nash	Dr. J. P. Battle.
New Hanover	Dr. W. D. McMillan.
Northampton	Dr. H. W. Lewis.
Onslow	Dr. Cyrus Thompson.
Orange	Dr. C. D. Jones.
Pamlico	Dr. Daniel A. Dees.
Pasquotank	Dr. H. T. Aydlett.
Pender	Dr. Robt. H. Bradford.
Perquimans	Dr. T. P. McMullen.
Person	Dr. W. T. Long.
Pitt	Dr. W. M. Fountain.
Polk	Dr. W. R. Engel.
Randolph	Dr. J. V. Hunter.
Richmond	Dr. N. C. Hunter.
Robeson	Dr. W. A. McPhail.
Rockingham	Dr. Sam Ellington.
Rowan	Dr. M. L. Smoot.
Rutherford	Dr. E. B. Harris.
Sampson	Dr. A. M. Cooper.
Scotland	Dr. K. A. Blue.
Stanly	Dr. J. N. Anderson.
Stokes	Dr. J. W. Neal.
Surry	Dr. John R. Woltz.
Swain	Dr. A. M. Bennett.
Transylvania	Dr. Goode Cheatham.
Tyrrell	Dr. J. L. Spruill.
Union	Dr. Henry D. Stewart.
Vance	Dr. E. F. Fenner.
Wake	Dr. J. J. L. McCullers.
Warren	Dr. M. P. Perry.
Washington	Dr. W. H. Ward.
Watauga	Dr. J. M. Hodges.
Wayne	Dr. T. M. Bizzell.
Wilkes	Dr. John Q. Myers.
Wilson	Dr. W. S. Anderson.
Yadkin	Dr. T. R. Harding.
Yancey	Dr. W. B. Robertson.

Dr I H Manning

BULLETIN

OF THE

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ONE MILLION DOLLARS WORTH OF STOCK IN PUBLIC HEALTH.

On the 26th of October a man whom all the world recognizes as one of the shrewdest business men that ever lived, decided to invest one million dollars in public health.

This unprecedented investment should suggest to the public mind several interesting and significant inquiries: *First*, did Mr. Rockefeller put a million dollars in something that will not bring the desired returns? *Second*, did Mr. Rockefeller invest one million dollars in something theoretical, something nothing more than the dream of an idealist, something impracticable? Did this shrewd, calculating, business man, for once, disregard all precedent and invest this immense sum of money without thoroughly investigating the value of his investment? Judging from his letter he did not, for in this letter he says: "For *many months my representatives* have been inquiring into the nature and prevalence of 'hookworm disease,' and considering plans for mitigating its evils. I have delayed action in this matter only until *the facts as to the extent of the disease could be verified and the effectiveness of its cure and prevention demon-*

strated." The italics are ours. It is therefore apparent that Mr. Rockefeller did not take anyone's word for the loss of health and life from hookworm and the practicability of its cure. He made his own investigation, and arrived at results that justified this reckless (?) investor in putting up one million dollars for the sanitary war against hookworm.

Now, scientists have for several years been claiming just what Mr. Rockefeller "verified" and "demonstrated," and, on these claims they have urged State governments to appropriate money for the preservation of such a cheap thing as human health and life. On the other hand, State governments, judging from their appropriations for different purposes, have considered it better business to spend the State's money on trees, plants, animals, birds, etc., as is well illustrated by the following story:

THE YOUNG MOTHER AND THE FAT HOG.

NOT A FABLE; SIMPLY STRAIGHT GOODS.

One time a little mother, who was only twenty-five years old, began to feel tired all the time. Her appetite had failed her for weeks before the tired feeling came. Her three little girls, once a joy in her life, now became a burden to her. It was, "Mama," "Mama," all day long. She never had noticed these appeals until the tired feeling came. The little mother also had red spots on her cheeks and a slight dry cough. One day, when dragging herself around, forcing her weary body to work, she felt a sharp but slight pain in her chest, her head grew dizzy and suddenly her mouth filled with blood. The hemorrhage was not severe, but it left her very weak. The doctor she had consulted for her cough and tired feeling prescribed bitters made of alcohol, water and gentian. This gave her false strength for a while, for it checked out her little reserve. When the hemorrhage occurred she and all her neighbors knew she had consumption, and the doctor should have known it and told her months before.

Now she wrote to the State Board of Health and said: "I am told that consumption in its early stages can be cured by outdoor life, continued rest, and plenty of plain, good food. I do not want to die. I want to live and raise my children to make them good citizens. Where can I go to get well?" The reply was: "The great Christian State of Indiana had not yet risen to the *mighty economy* of saving the lives of little mothers from consumption. At present, the only place where you can go is a grave. However, the State will care for your children in an orphan asylum after you are dead, and then in a few years a special officer will be paid to find a home for them. But save your life—Never. That is a cranky idea," for a member on the floor of the Sixty-fifth Assembly said so. "Besides," said he, "it isn't busi-

ness, the State can't afford it." So the little mother died of the preventable and curable disease, the home was broken up and the children were taken to the orphan asylum.

A big fat hog one morning found he had a pain in his belly. He squealed loudly and the farmer came out of his house to see what was the matter. "He's got the hog cholery," said the hired man. So the farmer telegraphed Secretary Wilson of the U. S. Agricultural Department (who said the other day he had 3,000 experts in animal and plant diseases), and the reply was: "Cert., I'll send you a man right away." Sure enough the man came. He said he was a D. V. S. and he was, too. He had a government syringe and a bottle of government medicine in his handbag, and he went for the hog. It got well. It wasn't cranky for the government to do this, and it could afford the expense, for the hog could be turned into ham, sausage, lard and bacon.

Anybody, even a fool, can see it would be cranky for the State to save the life of a little mother, and it could not afford it, either.

MORAL: Be a hog and be worth saving.

[The background of this story is laid in Indiana, but its truth applies with equal force to our own State. For while Indiana is spending $43,500 annually on her public health, North Carolina is spending the extravagant sum of $8,500 annually on our public health.]

Now, from what has been said it is very evident that there exists a very great difference of opinion between John D. Rockefeller and the average State government as to the value of public health. Either one or the other has made a big mistake, and if the oil king has made a bad business move it is about his first one. Whatever many people may think of his business methods, it would be rather difficult to find a sensible person who questions his business sense.

It is believed that this gift will serve its chief purpose, not in the eradication of hookworm, which it will to a large extent accomplish, but as a demonstration to State governments of the value of human health and life. And when that good day arrives Legislatures will investigate and verify the unanimous conclusion of scientists and statisticians, namely, that our country is losing 250,000 lives or their equivalent, $400,000,000, from sickness every year. Then in a great sanitary war against preventable disease State governments will honor John D. Rockefeller by following his lead.

PELLAGRA IN NORTH CAROLINA.

The general interest in this disease, as indicated by numerous and rather conflicting newspaper references, has suggested to the editor of the BULLETIN the advisability of complying with that section of our public health law, which, referring to the duties of the Board of Health, reads: "They shall gather such information upon all these matters [*i. e.*, epidemic diseases] for distribution among the people, with the especial purpose of informing them about preventable diseases."

To obtain such information in regard to Pellagra, the North Carolina Board of Health appointed a commission, composed of Drs. Edward J. Wood and R. Harlee Bellamy, both of Wilmington, to study this new malady. These men have given much of their time and energy to the investigation of this disease. We personally know that they have reviewed most, if not all, the English, Italian, French and German literature bearing on the disease. They have studied, both chemically and experimentally, nearly two hundred cases. It is our honest conviction that the men composing this commission are two of the best American authorities on pellagra.

A number of other commissions and the United States Marine Hospital Service are investigating the pellagra problem, and there exists between these separate bodies of investigators a healthy spirit of scientific rivalry in their efforts to be first in reaching the goal of truth regarding its prevention. This being so, let those doctors whose hearts are fired with patriotism uphold the hands of this commission, their worthy representatives, by cordially co-operating with them in reporting the data of all their cases to the Pellagra Commission.

As to the frequency of the disease in the State, it may be said that the Pellagra Commission know of probably two hundred cases, and as the disease is new and the greater part of the profession without experience in its recognition, we feel safe in concurring in the opinion of Drs. Wood and Bellamy that there are at least one thousand cases in North Carolina. Newspapers err in estimating the frequency by the number of cases reported in the BULLETIN. This is so because there is no law requiring doctors to report cases of this disease, and therefore only a small number of the cases actually existing are reported.

For the enlightenment of the profession and the public, we take pleasure in publishing an article on the occurrence of the disease in this State. This article, coming as it does, from the above commission, is at once official and authoritative.

PELLAGRA.

By EDWARD J. WOOD, M. D., and R. HARLEE BELLAMY, M. D., Pellagra Commission of the North Carolina Board of Health.

OCCURRENCE IN NORTH CAROLINA.

There is satisfactory proof that at least one case of pellagra occurred in this State as far back as 1889, and that there have been sporadic cases ever since that time. It is not probable that in its epidemic or endemic forms the disease was long overlooked.

One of the first physicians in North Carolina to correctly diagnose pellagra was Dr. John B. Wright, of Lincolnton. In 1905 in the practice of one of us (Bellamy) there appeared a peculiar disease, which was utterly unknown to any of us. There were four cases in one house. The people were negroes of the better class. The symptoms were stomatitis, diarrhea and symmetrical erythema of the exposed parts of the body. Three of these cases died, and the death certificate was made out Raynaud's disease. From that time to 1907 the disease occurred sporadically, and long before the diagnosis was correctly made we had become familiar with its varied manifestations, and especially the very characteristic disease picture as a whole. In 1907 one of us (Wood) reported a number of these cases to the Section of Medicine of the American Medical Association. In the meanwhile, however, one of us (Bellamy), during the session of the American Medical Association had a marked case from a distance, in which he made by exclusion the diagnosis of pellagra. Soon after Wood's paper appeared letters were received from several sources in Alabama which suggested that pellagra was the correct diagnosis. It is really to the work of Searcy, of Alabama, that we are indebted for clearing up one of the most difficult questions of diagnosis that could have been propounded, for we had been taught of pellagra only that we need know nothing about it, as it did not occur in America.

The first announcement of the presence in this State was made in the BULLETIN for May, 1908. At the meeting of the State Medical Society in June of the same year the matter was brought up in three papers, and it was at once demonstrated in the discussion that the disease was generally distributed throughout the State and had existed for several years.

So far we have been able to determine definitely the presence of pellagra in the following counties: Brunswick, New Hanover, Bladen, Pender, Columbus, Duplin, Jones, Lenoir, Cumberland, Robeson, Wayne, Wake, Durham, Orange, Randolph, Union, Mecklenburg, Lincoln, Burke, Buncombe, Anson, Forsyth, Guilford, Craven, Gaston,

Stanly, Rowan, Alleghany, Richmond, Harnett and Warren. This list by no means includes all the counties where the disease has been recognized, but is sufficient to demonstrate our contention that it is generally distributed. If any one section of the State is suffering more than another it is the south central counties. The largest number of cases have naturally been reported from Wilmington, Charlotte, Greensboro, Durham and Asheville, which may possibly be explained on the ground that these cities are medical centers of their respective sections.

There are definite records of probably 200 cases in North Carolina. It is difficult to estimate how many cases occur in the State as a whole. It is certain that only a small portion have been recognized. It should be remembered in this connection that pellagra may occur in children in such a mild form as never to attract sufficient attention to call for the services of a physician. It is no unusual thing for us to find, in running down one case, four or five more very mild cases in the same house.

Etiology.—Since this disease was first recognized maize has been connected with its etiology. The Italians have claimed for years that pellagra was due to eating maize, but have disagreed among themselves as to what bacteria or fungi acting upon the maize produce the toxin, if a toxin of exogenous origin is the cause, or what bacteria using maize as a culture medium are carried into the body with it.

Lombroso claimed that the maize became decomposed and a toxin, called by him pellagrozein, was produced which caused the disease.

Other observers claim that fungi of the genus *Aspergillus* was the causative agent.

We have just received an ear of corn upon which the fungus *Ustilago* is growing, producing a black smut called dustbrand and causing each grain of corn to appear like a large blue tick, which, upon being opened, shows the black smut. This is being grown and examined with regard to its being a possible cause.

Tizzoni of Italy has isolated from pellagrins a streptobacillus which is polymorphous, does not form spores and resists for an hour a temperature of 90° C. He has inoculated guinea pigs with it and produced death in 30 to 80 days, which was preceded by emaciation, diarrhea and falling of hair. He has also found the same organism in maize and has produced the same symptoms with it in the guinea pig as those produced by the one from pellagrins. To produce the disease *per os*, he has to mix the organism with corn meal, as the organism is not pathogenic when fed by itself. Injected beneath the skin the organism is pathogenic.

The French claim that poverty, with its resulting poor hygiene and poorer food, is the cause. This might be predisposing, but not causative, as this disease is seen in people of the better walks of life. They recognize a pseudo-pellagra and a true pellagra.

We have isolated from the blood of thirteen pellagrins a streptobacillus. It is polymorphous, forms spores and resists a temperature of 90 to 93 degrees for an hour. It is obtained only from the blood of acute cases or a chronic case with an acute exacerbation. It is not found during the stage of subsidence of symptoms, but only at the height of the disease or during the period preceding it.

Cultures from chronic and subsiding cases are always sterile. We have apparently obtained the same bacillus from corn meal. These two organisms are similar microscopically, but differ on culture media; but this may be due to the fact that one has gone through a certain metamorphosis in the blood and the other has not.

We believe that pellagra is an infectious disease due to an organism which gains entrance to the body, possibly by eating maize, but this we are not prepared to say.

Since 1905 we have been performing autopsies on patients dead of pellagra. Our experience has not been confined to two or three cases, but to a considerable number. The tissue removed at these autopsies has been studied with great care by us and others. Pellagra is too recent a disease in this country to yet show definite pathologic changes. That is, the morbid changes of pellagra do not appear in the acute variety of the disease, and only appear in the chronic after many years duration. Nothing is more disappointing than autopsy work in pellagra of short duration. Changes seldom occur until the disease has existed for three years, and even then the alteration is very insignificant. We cannot, then, contrary to the policy of this report, confine ourselves to our personal experience in describing the pathology. We must refer to European works to make our report complete. For the best account of the pathologic anatomy one should consult Tuczek. He emphasizes the fact that many of the so-called changes are really those of cachexia, which is merely the result of the pellagra. Among these changes may be mentioned atrophy of the subcutaneous fat and musculature and tendency to fatty degeneration of the internal organs, chiefly those innervated by the vagus, heart, kidneys, spleen, liver, intestinal tract and lungs.

The changes produced in the intestinal tract may be dismissed with a word. There is thinning of the walls in consequence of the atrophy of the muscular coat. There is often hyperæmia and ulcer formation in the lower portion of the intestinal tract. In our series two cases might be considered to have died of hemorrhage. In the careful autopsies of Drewry of Petersburg there was found in a number of cases acute colitis with erosions, chronic atrophic colitis, and acute colitis with erosions in the ilium. Perforation of ulcers have been reported a number of times.

It has been stated by some writers that the intestinal symptoms of pellagra are not due to any intestinal lesion *per se*, but are nervous disturbances. The more reasonable view is that there is some

toxin being eliminated by the intestinal tract and that in the process of elimination a varying amount of irritation is produced. It is claimed that this same elimination process accounts for the stomatitis.

Abnormal pigmentation seems to be rather peculiar to pellagra. It can hardly be distinguished from senile pigmentation. It occurs especially in the ganglion cells, the heart muscle (brown atrophy), the liver cells and the spleen.

The most important change brought about by pellagra is in the nervous system. It should not be lost sight of that the variously described conditions of hyperæmia, anæmia, œdema and obliteration of the central canal of the spinal cord are common to many chronic nervous diseases.

The posterior and the lateral columns of the cord are affected in pellagra. In our own series of cases 38 per cent had exaggerated pateller reflexes indicating affection of the lateral columns, 25 per cent had symptoms of affection of the posterior columns, while 44 per cent remained normal. It is usually considered that the weight of the disease falls on the crossed pyramidal tract. The direct cerebellar tract and the posterior root zones are never affected. The lesions of the posterior columns fall chiefly on the cervical and upper dorsal regions, while those of the lateral columns affect chiefly the middle and lower third of the dorsal region. There is often a very rich pigmentation of the nerve cells of the cord, and also of the spinal and sympathetic ganglia. This has been erroneously termed pigment atrophy. The assertion of Dejerine that there is degeneration of the peripheral nerves in pellagra should be accepted with some reserve; such changes are apt to occur in many diseases.

Mariani's view, that arteriosclerosis is a concomitant of pellagra, seems to be erroneous. Lukacs and Fabinyi found the arteries remarkably sound.

The central canal of the cord, as above mentioned, is frequently obliterated, while in other cases it is twisted and displaced. The glia of the commissure may be much increased.

In the cerebrum the layer of small pyramidal cells is unaffected, likewise the layer of large pyramidal cells, while in the deeper layers the nerve cells are markedly affected. The layer of polygonal and spindle cells is for the most part unchanged. In the most severely damaged cells the body is swollen, homogeneously granular, monochromatic, and at most a little darkened at the edges.

It is generally acknowledged that degeneration of the motor ganglion cells is more marked than that of the sensory. In the cord the cells of the anterior cornua are especially affected, and while the cells of the posterior cornua also are affected, the disease is here not near so marked.

Symptoms.—Pellagra is seen both as an acute and chronic process. Both forms occur in the spring or early summer, and a recurrence is seen also at this time of the year. The acute form is very fatal and is characterized by an exaggeration of all symptoms with the development of the typhoid state.

Fortunately, these acute fulminating cases are rarely seen now (at least we do not see them), and, strange to say, most of our earlier cases were of this variety, with a fatal termination.

The chronic form is prone to recur, and during each spring or summer is seen another attack, generally with added damage to the pellagrin.

In this disease the cutaneous, digestive and nervous systems are the seats of predilection.

Cutaneous.—Erythema is a constant symptom, and generally appears in one to four weeks after digestive symptoms. Pellagra-*sine*-pellagra is a mooted question. A diagnosis of this disease should be made with caution, unless an existing erythema or the history of a preceding one is found. Generally, by questioning closely, one will find that the patient can remember having had erythema.

The erythema in the primary attack is always like sunburn and in all cases absolutely symmetrical. It generally begins as a faint reddening of the skin, which gradually becomes more marked until it is identical in appearance with solar erythema. The skin becomes tense, but instead of the erythema disappearing or the upper cuticle exfoliating as in solar erythema, it progresses, becomes livid, and vesicles or bullæ may develop. Gradually the acute process subsides, the skin thickens and exfoliates, leaving a roughened, reddish and often pigmented surface. This gradually returns to normal and usually in a month or so shows little evidence of having existed. After several attacks, the skin may become atrophic, with permanent pigmentation.

In the acute form the skin lesion is much more marked and severe. Bullæ and vesicles occur oftener and a condition almost of ulceration develops. The portions of the body most often affected are generally in the order named: backs of hands, backs of forearms, top of feet in those going barefooted, back of neck, above and below each eye, and other parts of face and neck.

It is rare that we see portions of body unexposed to the sun's rays affected, but we have seen several cases. Often one sees erythema in a spot where there has been exposure to the sun through an opening in a garment, with the surrounding skin unaffected. The sun's rays are thought to be necessary for the development of the erythema. An acute exacerbation of an apparently subsiding case shows often an interesting lamellated appearance: a bright red erythema upon a dull subsiding one. We have seen three distinct lamellæ of erythema.

In closing the discussion of this symptom the peculiarities of it are that it is seen almost always on exposed surfaces and in all cases is symmetrical.

Digestive; Stomatitis.—This is almost always seen; mild in some cases and severe in others. It is sometimes so mild that it escapes notice. In most of our cases the tongue is most often affected and sometimes is the only portion of the mouth involved. It is usually very red, smooth and painful and often looks as if it had been scalded. Sometimes only the edge of the tongue is involved, the epithelium being denuded in places with an unaffected center. The buccal mucous membrane is often affected, the epithelium being congested and red. We do not see the white, ulcerated spots spoken of by others. The gums are sometimes involved, being swollen, red and tender. In very acute cases the tongue becomes cracked and dry, bleeding easily.

Stomatitis does not exist long; usually in a week to three weeks it disappears altogether, although there are exceptions to this rule. In acute exacerbations it generally reappears with the diarrhea and erythema.

Stomach.—Usually the first symptom the patient notices is a tense, painful and tender condition of the epigastrium. Nausea and vomiting are not common, but are sometimes seen. This condition disappears to some extent, but for three or four months there is an uneasiness in the epigastrium. Anorexia is the rule, but often patients are seen with voracious appetites. The stomatitis aids in limiting the amount of food taken.

Diarrhea.—A serous diarrhea with little tenesmus is generally seen. In acute cases great tenesmus with bloody evacuations sometimes occur. Two to ten stools in the twenty-four hours is the rule, but there may be twenty and even forty. The stools are serous and mixed with a small amount of mucus. Constipation without even a loose movement occurs in some cases, but usually when patients claim they have been constipated a history of a few days of diarrhea can be obtained. Usually diarrhea is a very persistent symptom and often lasts through the summer, well into the winter, and sometimes is permanent.

Nervous System.—The nervous system is generally not involved during the first attack, but usually after the second and always after the third the nervous symptoms make their appearance. During an acute attack delirium is common, but any nervous lesion is rare. Generally after a recurrence all the reflexes, both superficial and deep, are heightened. If the lateral tracts become involved spasticity is seen. This is sometimes very marked and not unlike primary lateral sclerosis with its lead-pipe contractures, greatly heightened reflexes and gait. If the posterior tracts are involved ataxic symptoms may be seen.

Involvement of the anterior horns of the cord will show muscular weakness with atrophy and symptoms identical with amyotrophic lateral sclerosis when the lateral tracts are conjointly affected. Transverse myelitis is seen at times. Only a month ago a patient was seen with this condition, resulting in death. We have also seen this summer a patient with bulbar palsy.

Acute cases have either normal or lowered reflexes. After a case has existed for years, usually toward the end the reflexes become much lowered and may disappear. The pupils are involved at times and generally show a tardy reaction to both light and accommodation.

Mental symptoms are extremely common and are seen in almost all cases that have had a recurrence. Even during the first attack invariably the patients become neurasthenic and are moody and apathetic. After a recurrence they become much depressed, often weep and may have delusions. It is seldom that we see any real mental condition until after the second recurrence, when melancholia is the most common. Mania is not common, but we have had one patient with this condition and another with an apparent circular insanity. All of these conditions invariably end in dementia. Dementia may occur without melancholia or any preceding condition, but the rule is melancholia followed by dementia.

Other Symptoms.—Emaciation to some degree is seen in all cases. Those cases with severe diarrhea and stomatitis invariably lose flesh rapidly. After the subsidence of symptoms a patient generally gains flesh rapidly, but in the old chronic cases with mental symptoms patients always remain emaciated.

There is a peculiar cry or whine which seems to occur only in this disease. It is hard to describe, but is usually heard on answering questions.

Nephritis is seen at times and is usually due to a complication or precedes the disease. Indicanuria is common. The blood shows secondary anæmia of a mild to a severe degree. In our cases there was no leucocytosis.

Diagnosis.—In making a diagnosis of pellagra, always remember the triad of symptoms: stomatitis, diarrhea and erythema.

Erythema is always present at some time. If it is not, or has not been present, do not make a diagnosis.

Diarrhea is constant and by close questioning a history of it can usually be brought out, although it may have been very slight.

Stomatitis is the rule, but in our experience is the least constant of all symptoms.

Treatment.—Our first experience in the treatment of pellagra was most disappointing. This was largely due to the fact that the greater

number of our earlier cases belong to the very acute or fulminating pellagra, which is an utterly hopeless condition. As we see the disease to-day, we do not consider it so hopeless a proposition.

When the hygienic conditions are bad they should be corrected, but in our experience there are as many cases among the well-conditioned as among the less fortunate. A patient with pellagra should be put at rest, in bed, at least until the diarrhea and stomatitis are relieved. The diet should at first be liquid, preferably milk. Just as in sprue, there is no diet so well suited as milk. Nothing should be added to the milk until the diarrhea is well over, and then one after another of highly nutritious but easily digested articles should be given with caution. It is well at first to avoid fruit and vegetables. Many of these patients are voracious and it is important to hold them in check.

Our experience with atoxyl has recently been more encouraging. It should be remembered that this drug is more dangerous than was at first supposed, there being several recorded cases of blindness and death from its too free use. The dose in this country and Great Britain is much smaller than in Germany and Austria. In the former countries it ranges from ¾ of a grain to 3 grains, and in the latter an average of 7½ grains. In preparing the solution for use no heat should be employed. The drug should be placed in a sterilized dark bottle and a sufficient quantity of sterile water added to make the desired solution. We use the solution in the strength of one to six. On every fourth or fifth day we inject deep into the gluteal muscles 7½ grains of atoxyl and carefully watch results. After several injections the dose is gradually decreased. During this treatment the urine should daily be examined for albumen, which, if present, is an indication for the cessation or reduction in the dose of atoxyl. On the intervening days between the doses of atoxyl we have found good results from the use of Sharp & Dohme's arsenite of iron administered in the same way as was the atoxyl. This preparation, while representing only 1-70 grain of arsenic trioxide, seems to have a most beneficial effect. We have in mind one case in particular where the results from this treatment were most gratifying. When the treatment was begun the patient had the well marked, moist lesions on the backs of the hands, an obstinate diarrhea and great weakness. After two weeks the skin lesions and diarrhea were entirely relieved and in six weeks he had gained five pounds in flesh. It should be remembered that pellagra is, in many instances, a self-limiting disease, and oftentimes it is the course of the disease and not the drug that brings about the welcome improvement.

There has been recently introduced in Italy a drug called Almateina, which is a combination of formaldehyde and hematoxylon and which is supposed to exercise in the intestinal tract the same action as urotropin exercises in the urinary tract. Our experience with it

has been very limited, as it is most difficult to secure, the drug not being yet on sale in this country, but we are inclined to think that it will be most useful in the intractible diarrhea of pellagra.

While we consider the relation of corn and pellagra still an open question, we make it a routine custom to withhold all corn food from these patients during the attack and also between attacks. This is often a hard order to have carried out, but we prefer to err on the safe side until this problem is cleared up.

The treatment should not be abandoned too soon. With the coming of cold weather the symptoms usually subside, but the patient should be kept under observation all winter long, and his resistance kept at the highest point in order to prevent the return of the trouble with the coming spring. It is well, even though no symptoms exist, to give a course of the above detailed treatment during February. We have learned from experience to watch these patients for at least two years with as much care as we watch over patients with syphilis.

We have not gone into a complete discussion of this disease, nor have we made any effort to write an elaborate paper, but merely wish to publish for distribution a simple description of pellagra so that it may be recognized by the profession in North Carolina.

DANGEROUS WATER.

In compliance with chapter 808 of the Laws of 1909, the public are hereby officially notified that the water sold by the Buffalo Lithia Springs Water Company of Buffalo Lithia Springs, Va., and the water sold by Smith's Lithia Water Company of Oxford, N. C., has been found by three successive analyses made by the State Laboratory of Hygiene to be dangerous to the public health.

REVIEW OF DISEASES FOR SEPTEMBER, 1909.

EIGHTY-SIX COUNTIES REPORTING.

Ninety-seven counties have superintendents of health.

Except in the case of the more contagious diseases, the superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of noncontagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of September the following diseases have been reported from the counties named:

SMALLPOX.—Camden, 6 cases; Craven, 3; Duplin, 6; Forsyth, 14; Franklin, 1; Johnston, 2; Jones, 16; Lenoir, 4; Mecklenburg, 4; Onslow, 12; Pitt, 1; Union, 1—12 counties.

MEASLES.—Alleghany, 2; Burke, a few; Davidson, 6; Duplin, 6; Johnston, a few; Martin, a few; Mecklenburg, a few; Randolph, a few—Union, 12; Wake, 1—10 counties.

WHOOPING-COUGH.—Caldwell, 48; Catawba, a few; Cleveland, a few; Davidson, 15; Franklin, a few; Graham, several; Granville, 10; Harnett, a few; Haywood, a few; Jones, a few; Martin, 3; Mecklenburg, a few; Pender, 1; Perquimans, 2; Person, 3; Polk, 5; Wake, 1—17 counties.

SCARLATINA.—Alamance, several; Alleghany, 3; Burke, several; Caldwell, 8; Carteret, 15; Catawba, a few; Chowan, 1; Cleveland, a few; Davidson, 2; Durham, a few; Edgecombe, 3; Forsyth, 4; Gaston, 1; Granville, 1; Greene, 4; Guilford, 2; Harnett, several; Henderson, 5; Hertford, 3; Iredell, 4; Jackson, 2; Johnston, epidemic; Lee, 1; Lenoir, 1; Macon, 4; Martin, a few; Mecklenburg, a few; Nash, 18; Rowan, 4; Sampson, 1; Tyrrell, 1; Union, 3; Vance, many; Wake, 7; Warren, 1; Watauga, 30; Wilkes, 1; Wilson, 9—38 counties.

DIPHTHERIA.—Alamance, several; Alleghany, 2; Ashe, 5; Beaufort, 10; Bertie, 1; Brunswick, 1; Buncombe, 6; Catawba, a few; Chatham, 5; Cherokee, 10; Clay, 1; Craven, 2; Cumberland, 1; Davidson, 5; Davie, 2; Duplin, 8; Durham, a few; Edgecombe, 15; Forsyth, 2; Franklin, 21; Granville, 28; Greene, many; Guilford, 9; Halifax, 12; Harnett, several; Haywood, 15; Henderson, 4; Hertford, 3; Hyde, several; Jackson, 2; Johnston, a few; Lenoir, 30; Macon, 10; Martin, 8; Mecklenburg, a few; Mitchell, prevalent; Montgomery, 5; Nash, 3; New Hanover, 17; Northampton, several; Onslow, 5; Pamlico, 1; Perquimans, several; Person, 8; Pitt, 15; Randolph, several; Robeson,

2; Sampson, 17; Surry, 4; Tyrrell, 1; Vance, several; Wake, 9; Warren, several; Watauga, 6; Wayne, a few; Wilkes, a few; Wilson, 2—57 counties.

Typhoid Fever.—Alamance, 10; Alexander, 2; Alleghany, 4; Ashe, 11; Beaufort, 4; Bertie, 2; Bladen, a few; Brunswick, 3; Burke, a few; Caldwell, several; Camden, 4; Carteret, a few; Catawba, several; Chatham, 8; Clay, 2; Cleveland, a few; Columbus, 3; Craven, 2; Cumberland, a few; Currituck, a few; Davidson, 5; Davie, a few; Duplin, 11; Durham, a few; Franklin, several; Gaston, 3; Gates, 5; Graham, 5; Granville, 20; Greene, 6; Guilford, 1; Harnett, several; Haywood, 4; Henderson, 2; Hertford, 4; Hyde, 2; Iredell, 5; Jackson, 4; Johnston, a few; Jones, 2; Lee, 1; Lenoir, 1; McDowell, 3; Macon, 4; Martin, 2; Mecklenburg, a few; Mitchell, prevalent; Montgomery, 5; Nash, 3; New Hanover, 6; Northampton, several; Onslow, a few; Pamlico, 8; Pender, 2; Perquimans, 1; Person, 1; Pitt, 4; Randolph, a few; Robeson, 5; Rowan, 6; Rutherford, 14; Scotland, 4; Surry, 4; Union, 15; Vance, several; Wake, 19; Washington, 2; Watauga, 10; Wilkes, a few; Yancey, 2—70 counties.

Malarial Fever.—Cabarrus, prevalent; Hertford, prevalent; Hyde, several cases; Richmond, prevalent; Washington, prevalent—5 counties.

Malarial Fever, Pernicious.—Craven, 2; Gates, 2; Martin, 6; Northampton, 4; Onslow, 1; Pamlico, 2; Union, 2; Wake, 1—8 counties.

Malarial Fever, Hemorrhagic.—Bertie, 2; Craven, 1; Gates, 2; Martin, 6; Northampton, 4; Onslow, 1; Pamlico, 2; Union, 1—8 counties.

Pneumonia.—Chatham, 4; Clay, 1; Duplin, 7; Durham, 2; Gaston, 1; Harnett, a few; Jackson, 1; Lee, 1; McDowell, 1; Montgomery, 2; Onslow, 1; Pamlico, 1; Pender, 1; Perquimans, 1; Robeson, 1; Watauga, 2—16 counties.

Cerebro-spinal Meningitis.—Alamance, 1; Camden, 2; Chowan, 1; Martin, 1—4 counties.

Pellagra.—Cabarrus, 1 case.

Staggers.—Epidemic in Gates.

Cholera, in Hogs.—Epidemic in Hertford, some in Martin, some in Pitt.

No reports received from Anson, Caswell, Dare, Lincoln, Moore, Orange, Rockingham, Stauly, Stokes, Transylvania and Yadkin.

No diseases reported from Swain.

Mortuary Report for September, 1909.

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total Deaths. By Towns.	Total Deaths. By Races.	Deaths under five years.	Stillborn.
Asheville	W.	15,000	22,000	20.7	22.3	1	--	--	2	--	--	1	7	--	4	--	2	8	1	--	--	26	41	6	--
	C.	7,000		25.6		--	--	--	--	--	--	--	4	--	--	1	1	8	1	--	--	15		4	1
Beaufort	W.	------	2,195	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	3	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	3	--	--	--	--	3		2	--
Burlington	W.	------	3,692	------	------	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--	2	5	2	1
	C.	------		------		--	--	--	--	--	--	--	1	--	--	--	1	1	--	--	--	3		1	1
Charlotte	W.	18,000	30,000	16.5	19.2	3	--	1	1	--	--	--	3	1	2	2	2	10	--	--	--	25	48	9	1
	C.	12,000		22.9		1	--	6	--	--	--	--	2	--	1	1	--	10	2	--	--	23		5	2
Concord	W.	------	7,910	------	------	--	--	1	--	--	--	--	1	--	1	--	--	3	1	--	--	7	9	3	1
	C.	------		------		--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	2		--	3
Durham	W.	12,000	18,000	7.9	------	1	--	--	--	--	--	--	2	--	1	--	1	3	--	--	--	8	21	--	--
	C.	6,000		25.9		1	--	--	--	--	--	--	2	--	--	1	2	7	--	--	--	13		5	--
Edenton	W.	3,000	6,000	0.0	13.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	7	--	--
	C.	3,000		27.9		--	--	--	--	--	--	--	1	--	--	--	--	5	1	--	--	7		4	--
Forest City	W.	------	1,090	------	21.9	1	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	2	2	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Gastonia	W.	------	4,610	------	------	--	--	--	--	--	--	--	--	1	--	--	2	1	--	1	--	5	7	2	3
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2		2	--
Graham	W.	------	2,052	------	------	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	1	2	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Greenville	W.	------	2,565	------	------	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	3	--	--
	C.	------		------		--	--	--	--	--	--	--	--	1	--	--	--	1	--	--	--	2		1	--
Greensboro	W.	10,000	16,000	12.0	15.7	1	--	--	--	--	--	--	2	--	2	--	--	4	1	--	--	10	21	2	1
	C.	6,000		21.9		--	--	--	--	1	--	2	2	1	1	--	1	2	1	--	--	11		4	2
Henderson	W.	------	3,746	------	------	--	--	--	--	--	--	--	--	--	--	1	1	1	1	--	--	4	7	1	--
	C.	------		------		--	1	--	--	--	--	--	1	--	--	--	--	1	--	--	--	3		--	--
Hendersonville	W.	------	1,917	------	------	--	--	--	--	--	--	--	1	--	--	--	1	1	--	--	--	3	4	1	--
	C.	------		------		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1		--	--
Hertford	W.	------	1,382	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	1	--	--
	C.	------		------		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1		1	--
Hickory	W.	------	2,535	------	------	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	2	--	--
	C.	------		------		1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1		--	--
High Point	W.	9,200	11,200	5.1	5.28	1	--	--	--	--	--	--	1	--	--	--	--	2	--	--	--	4	5	--	--
	C.	2,000		6.0		--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	1		--	--
Kinston	W.	------	4,106	------	------	2	--	--	--	--	--	--	1	2	--	1	2	1	--	--	--	9	10	3	--
	C.	------		------		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1		--	--
Lexington	W.	3,000	3,600	7.9	6.6	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2	2	--	1
	C.	600		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Louisburg	W.	------	1,178	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	4	--	--
	C.	------		------		1	--	--	--	--	--	--	1	--	--	--	1	1	--	--	--	4		1	--
Marion	W.	1,500	1,600	7.9	7.4	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	1	1	--	--
	C.	100		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
McAdensville	W.	------	1,144	------	------	--	--	--	--	--	--	--	1	--	--	--	1	--	--	--	--	2	2	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Monroe	W.	------	2,427	------	------	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--	2	2	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Morganton	W.	------	1,938	------	------	2	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	4	5	--	--
	C.	------		------		1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1		--	--
Morehead City	W.	------	1,379	------	------	--	--	--	--	--	--	--	2	--	--	--	1	2	--	--	--	5	5	2	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total Deaths. By Races.	Total Deaths. By Towns.	Deaths under five years.	Stillborn.
Mooresville	W.	------	1,533	------	------	--	--	--	--	--	--	--	--	--	--	1	--	2	--	--	--	3	3	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Mt. Airy	W.	------	2,680	------	------	--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	2	3	2	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1		--	2
Newton	W.	------	1,583	------	------	1	--	--	--	--	--	--	1	--	1	--	--	3	--	--	--	6	6	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
New Bern	W.	7,500	15,000	11.1	19.2	1	--	--	--	--	--	--	--	--	--	1	1	4	--	--	--	7	24	2	--
	C.	7,500		27.1		--	--	4	--	--	--	2	1	1	2	--	3	4	--	--	--	17		6	--
Oxford	W.	2,000	4,000	6.0	3.0	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1	1	--	--
	C.	2,000		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Plymouth	W.	------	1,011	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	2	--	--
	C.	------		------		--	--	--	--	--	--	--	1	--	--	1	--	--	--	--	--	2		1	--
Raleigh	W.	14,000	25,000	26.5	22.5	2	--	3	--	--	--	--	1	1	5	3	3	13	--	--	--	31	47	5	3
	C.	11,000		17.4		--	--	--	--	--	--	--	3	2	--	2	--	9	--	--	--	16		6	1
Reidsville	W.	4,000	6,000	12.0	15.9	2	--	--	--	--	--	--	--	--	1	--	1	--	--	--	--	4	8	--	--
	C.	2,000		24.0		--	--	--	--	--	--	--	1	--	--	--	1	2	--	--	--	4		--	--
Rocky Mount	W.	5,000	8,000	14.4	13.4	--	--	--	--	--	--	--	1	--	1	--	--	4	--	--	--	6	9	6	--
	C.	3,000		12.0		--	--	--	--	--	--	--	1	--	--	--	1	1	--	--	--	3		--	--
Rockingham	W.	------	1,507	------	------	--	--	--	--	--	--	--	--	--	2	--	--	--	1	--	--	3	3	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Roxboro	W.	------	1,021	------	------	--	--	--	--	--	--	--	2	--	--	--	--	1	--	--	--	3	3	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Salem	W.	3,000	3,400	7.9	17.6	--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	2	5	--	--
	C.	400		90.0		--	--	--	--	--	--	--	2	--	1	--	--	--	--	--	--	3		--	--
Salisbury	W.	5,000	8,000	9.6	6.0	--	--	--	--	--	--	--	--	1	--	--	3	--	--	--	--	4	4	1	--
	C.	3,000		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Sanford	W.	------	1,044	------	------	1	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	2	3	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1		--	--
Scotland Neck	W.	------	1,348	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	2	--	--
	C.	------		------		--	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	2		--	--
Shelby	W.	------	1,874	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	1	--	--
	C.	------		------		--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1		--	--
Southport	W.	1,000	1,600	24.0	15.0	--	--	--	--	--	--	--	1	--	1	--	--	--	--	--	--	2	2	--	--
	C.	600		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Statesville	W.	------	3,141	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	2	--	--
	C.	------		------		--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	2		--	--
Tarboro	W.	1,500	3,000	24.0	27.9	--	--	--	--	--	--	--	--	--	--	--	2	1	--	--	--	3	7	3	--
	C.	1,500		31.9		--	--	--	--	--	--	--	1	--	--	--	--	3	--	--	--	4		2	--
Wadesboro	W.	------	1,546	------	------	--	--	--	--	--	--	1	--	--	--	--	--	1	--	--	--	2	3	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		1	--
Waynesville	W.	------	1,307	------	------	--	--	--	1	--	--	--	--	--	--	--	--	1	--	--	--	2	2	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Weldon	W.	800	1,400	45.0	42.8	--	--	--	1	--	--	--	--	--	--	--	--	1	1	--	--	3	5	2	--
	C.	600		39.9		--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2		2	--
Wilson	W.	3,800	6,800	6.2	3.4	1	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	2	2	--	--
	C.	3,000		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Wilmington	W.	16,000	30,000	9.7	18.3	2	--	--	--	--	--	--	--	--	1	--	--	10	--	--	--	13	46	6	4
	C.	14,000		28.2		1	--	--	--	--	--	--	5	3	5	--	5	13	1	--	--	33		13	8

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

County Superintendents of Health.

Alamance.....Dr. H. M. Montgomery.
Alexander.....Dr. B. O. Choate.
Alleghany.....Dr. Robert Thompson.
Anson.....Dr. E. S. Ashe.
Ashe.....Dr. J. C. Testerman.
Beaufort.....Dr. P. A. Nicholson.
Bertie.....Dr. John L. Pritchard.
Bladen.....Dr. L. B. Evans.
Brunswick.....Dr. J. Arthur Dosher.
Buncombe.....Dr. D. E. Sevier.
Burke.....Dr. J. R. Anderson.
Cabarrus.....Dr. J. M. Wallace.
Caldwell.....Dr. C. L. Wilson.
Camden.....Dr. C. G. Ferebee.
Carteret.....Dr. W. E. Headen.
Caswell.....Dr. S. A. Malloy.
Catawba.....Dr. T. C. Blackburn.
Chatham.....Dr. L. E. Farthing.
Cherokee.....Dr. J. F. Abernethy.
Chowan.....Dr. H. M. S. Cason.
Clay.....Dr. J. M. Sullivan.
Cleveland.....Dr. T. E. McBrayer.
Columbus.....Dr. H. B. Maxwell.
Craven.....Dr. Joseph F. Rhem.
Cumberland.....Dr. A. S. Rose.
Currituck.....Dr. H. M. Shaw.
Dare.....
Davidson.....Dr. E. J. Buchanan.
Davie.....Dr. M. D. Kimbrough.
Duplin.....Dr. John A. Ferrell.
Durham.....Dr. N. M. Johnson.
Edgecombe.....Dr. Spencer P. Bass.
Forsyth.....Dr. J. K. Pepper.
Franklin.....Dr. R. F. Yarborough.
Gaston.....Dr L. N. Glenn.
Gates.....Dr. Geo. D. Williams.
Graham.....Dr. M. T. Maxwell.
Granville.....Dr. S. D. Booth.
Greene.....Dr. W. B. Murphy.
Guilford.....Dr. Edmund Harrison.
Halifax.....Dr. I. E. Green.
Harnett.....Dr. L. J. Arnold.
Haywood.....Dr. J. R. McCracken.
Henderson.....Dr. J. G. Waldrop.
Hertford.....Dr. J. H. Mitchell.
Hyde.....Dr. R. E. Windley.
Iredell.....Dr. M. R. Adams.
Jackson.....Dr. A. S. Nichols.
Johnston.....Dr. L. D. Wharton.
Jones.....Dr. A. F. Hammond.
Lee.....Dr. J. P. Monroe.
Lenoir.....Dr. N. A. Whitaker.
Lincoln.....Dr. J. W. Saine.
McDowell.....Dr. Geo. S. Kirby.
Macon.....Dr. S. H. Lyle.
Madison.....Dr. W. J. Weaver.
Martin.....Dr. W. E. Warren.
Mecklenburg.....Dr. C. S. McLaughlin.
Mitchell.....Dr. Virgil R. Butt.
Montgomery.....Dr. C. Deligney.
Moore.....Dr. Gilbert McLeod.
Nash.....Dr. J. P. Battle.
New Hanover.....Dr. W. D. McMillan.
Northampton.....Dr. H. W. Lewis.
Onslow.....Dr. Cyrus Thompson.
Orange.....Dr. C. D. Jones.
Pamlico.....Dr. Daniel A. Dees.
Pasquotank.....Dr. H. T. Aydlett.
Pender.....Dr. Robt. H. Bradford.
Perquimans.....Dr. T. P. McMullen.
Person.....Dr. W. T. Long.
Pitt.....Dr. W. M. Fountain.
Polk.....Dr. W. R. Engel.
Randolph.....Dr. J. V. Hunter.
Richmond.....Dr. N. C. Hunter.
Robeson.....Dr. W. A. McPhail.
Rockingham.....Dr. Sam Ellington.
Rowan.....Dr. M. L. Smoot.
Rutherford.....Dr. E. B. Harris.
Sampson.....Dr. A. M. Cooper.
Scotland.....Dr. K A. Blue.
Stanly.....Dr. J. N. Anderson.
Stokes.....Dr. J. W. Neal.
Surry.....Dr. John R. Woltz.
Swain.....Dr. A. M. Bennett.
Transylvania.....Dr. Goode Cheatham.
Tyrrell.....Dr. J. L. Spruill.
Union.....Dr. Henry D. Stewart.
Vance.....Dr. E. F. Fenner.
Wake.....Dr. J. J. L. McCullers.
Warren.....Dr. M. P. Perry.
Washington.....Dr. W. H. Ward.
Watauga.....Dr. J. M. Hodges.
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THE IMPORTANCE OF TEACHING THE SUBJECT OF HEALTH IN THE PUBLIC SCHOOLS.

The Importance of the Subject.

Emerson has truly said "The first wealth is health," for health is the prerequisite of all development. All development? Yes; from the very moment when the male and female elements, the twain, unite to make one flesh, till the body reaches its full maturity—physical, moral and mental. Health, then, is by the decree of nature primary and fundamental—just as primary and fundamental, so far as subsequent events are concerned, as is the foundation of a building primary and fundamental to its superstructure. Health is the first, the dearest gift of God to his children. There is nothing more important. Why, character itself is largely determined by health. Such being its importance, we that are interested in education may do well to consider carefully and seriously—

The Claim of the Subject of Health to a Place in Our Public-school Curriculum.

THE RELATIVE VALUE OF STUDIES.

Such a consideration must necessarily first deal with the *relative value of the subject of health as compared with other subjects taught in the public schools.* To determine this requires us to find a scale of values applicable to the various studies taught in our public schools. Certainly it is vitally important for those interested in education to have some way of estimating the relative value of these studies, for, in the short time that they have the child to educate, they should select for his study those things most valuable to him and to his generation.

CLASSIFICATION ACCORDING TO VALUE.

In an attempt to arrive at such a scale of values we may start with the self-enforced proposition, that there are three possible kinds of values, namely, fundamental values, cultural values, and practical values. Let me define: A study of fundamental value is one necessary to the intelligent pursuance of a subsequent study, and the fundamental value of the former is proportionate to the importance of the latter. For example, the Greek alphabet is fundamental to the Greek vocabulary. Arithmetic is fundamental to algebra. A study is of cultural value that exercises and thereby develops the mind. We know the term "culture" applied to the soil means its preparation by the use of the agricultural implement and fertilizer for the reception and growth of seed. When the term "culture" is applied to the mind it means a process of preparation whereby the mind is made more receptive, more retentive and more fructifying for the seed of truth. Every study exercises the mind, and through this exercise has the above *general* cultural value. But in addition to this general cultural value, possessed in some degree by every study, certain studies have *special* cultural values. For example, the study of the Bible, by exercising the mind, has a general cultural value; but in developing the moral sense it has a special cultural value. History has the general cultural value of exercising the mind, and the special cultural value of developing the sense of patriotism. A study of practical value is one made use of in daily practice. The arts are examples. Such as agriculture, medicine and architecture are practical studies. As a matter of fact, there is no study the value of which is restricted to one of the three kinds of value, but every study is of fundamental, cultural and practical value. Fundamental, because all knowledge is connected like the links of a chain, and every truth, therefore, leads up to another and is fundamental to it. Cultural, because every study exercises and develops the mind. Practical, because all knowledge is useful, although we may not yet know how to apply it.

PUBLIC-SCHOOL STUDIES MAINLY OF FUNDAMENTAL AND CULTURAL VALUE.

But there are studies, the principal value of which is fundamental, others the principal value of which is cultural, and still others, the principal value of which is practical. Naturally, the "three r's" fall into the class of fundamentals, for they form the very foundation of education. There can be no education without a knowledge of reading, writing and arithmetic. The other studies taught in the public schools, such as geography, history, the higher courses in grammar and mathematics, are mainly of cultural value. The practical value of these subjects is largely determined by individual circumstances. To teachers, explorers, engineers and those doing certain research work these studies are essentially practical. But, when you consider the small part of the total number of public-school pupils entering the above professions; when you consider the large number of pupils that go no further than the public schools; and when you consider the small part of the arithmetic, geography and history studied that we make practical use of in our daily living; I believe you will conclude that 90 per cent of the value of these studies is fundamental and cultural, and only about 10 per cent practical.

THE RULE.

Now, if we accept in the main the above considerations, we must then agree that the work of the public school is largely fundamental and cultural. This is exactly as it should be. Why? Because a public institution, such as our public-school system, must consider and deal with those things of *common* interest, those things of value to the *average* man, and *not those* things the value of which is largely determined by *individual* circumstances. Now, only fundamental and cultural studies supply a common need—that is, are necessary for the development of *every* normal mind. The value of practical studies, such as the arts, is almost wholly determined by *individual* circumstances. Only certain individuals, for example, are fitted by their nature and environment to study medicine, or architecture, or some other art. We may from what has been said deduce this rule: The duty of the public school is to teach those subjects that are of common value, that is, the fundamental and the cultural, and not to teach those things the value of which is largely determined by *individual* circumstances—that is, the practical subjects.

THE EXCEPTION.

But all rules have their exceptions, and to this one there is just one exception that I know of; but this is an all-important exception. That exception is the one practical study that is of value to *every* individual *every* day that he lives. It is the subject of health. *The subject of health, please observe, claims a place in our public schools on the same ground that the fundamental and cultural studies hold their places; for, like them, it supplies a common need, and, unlike all other practical studies, its value is not subject to individual circumstances.*

Now, having carefully considered this subject in its relation to the public school, and being convinced that it has a clear and valid title to a place in our public-school curriculum, we pass to a consideration of our subject: first, for its fundamental value; secondly, for its cultural value; and, thirdly and lastly, for its practical value.

FUNDAMENTAL VALUE OF THE SUBJECT OF HEALTH.

The first consideration, namely, the fundamental value of the study of health, may be compared with the three "r's," the fundamentals. For, indeed, it is often fundamental to the fundamentals. Some one has said that, "the school should cultivate first, health, strength and energy. After these should come honesty, courage and patriotism; and then the ability to read and write one's own language, together with a knowledge of arithmetic." In France they attempt to develop a good animal and out of this make a good citizen. Is this not a sensible view of the function of education?

CULTURAL VALUE OF THE SUBJECT OF HEALTH.

The second consideration, namely, its cultural value, is the same as that of any other study that exercises the mind in an equal degree, *plus* the cultural effect of nature study, for the study of health is largely nature study. Sir Thomas Browne has emphasized the importance of this study of nature by comparing it with the Bible. He says: "Thus there are two books from whence I collect my divinity. Besides that written one of God, another of his servant, Nature, that universal and public manuscript, that lies expansed unto the eyes of all. Those that never saw him in the one have discovered him in the other; this was the scripture and theology of the heathens; the natural motion of the sun made them more admire him than its supernatural station did the children of Israel. The ordinary effects of nature wrought more admiration in them than, in the other, all his miracles. Surely, the heathens knew better how to join and read these mystical letters than we Christians, who cast a more careless eye on these common hieroglyphics, and disdain to suck divinity from the flowers of nature." Should not a child's education include at least the elements of nature study, that is, the mere alphabet of "that universal and public manuscript that lies expansed unto the eyes of all"? Teach the child to interpret—

"A fire mist and a planet,
  A crystal and a cell,
A jelly-fish and a saurian,
  And caves where the cave men dwell;
Then a sense of law and beauty,
  And a face upturned from the clod;
Some call it evolution,
  And others call it God."

The book of nature, by bringing the mind closer to first principles, closer to the Great First Cause, tends to liberate it from the fetters of dogma; gives the mind power to distinguish between opinion and fact; gives it a taste for research—that is, independent thinking—and a keener appetite for truth; makes it see self not as an entity, but as a part; gives it a clearer conception of the relation of the individual to the public; gives it a broader charity for those whose defect is not their fault, but the result of environment.

PRACTICAL VALUE OF HEALTH STUDY; TWO CLASSES OF DISEASE.

The last and third consideration, namely, the practical value of health study, is by all odds the most important aspect of this subject. To teach this will necessitate the instruction of children in regard to the prevalence, the effect, and the prevention of diseases, which, for the sake of simplicity, may be divided into two classes: the common noncontagious diseases of childhood; and, second, the contagious preventable diseases.

PREVALENCE OF NONCONTAGIOUS DISEASES OF CHILDREN.

In regard to the prevalence of the first class—the common noncontagious diseases of children—it should be known that examination of hundreds of thousands of children, examinations made not by one or two examiners, in which case there would be some liability to slight error, but examinations by many examiners, and all examinations confirmatory of each other, have disclosed the following facts: that 15 to 20 per cent of all school children have defective eyes; that about 5 per cent of all school children have defective ears; that from 5 to 20 per cent have adenoids; that about 90 per cent have teeth that need attention; and that in North Carolina a very large percentage of children in our rural schools have hookworm disease.

THEIR EFFECT.

As regards the effect of this class of diseases, it may be said that the victims of these diseases are usually unaware of their presence. This is true because this class of ailments are so gradual in their onset that their inception is unnoticed, and the great adaptability of the body during childhood renders the child unconscious of the continuation of the disease. This adaptation is effected in one of two ways: First, there may be a diminution of the output of productive energy, in which case the child fails to accomplish the task of the average child. Second, the disease may be latent, that is, hidden. This is due to some organ or organs, auxiliary to the diseased organ, assuming the lost function of the diseased organ. We doctors speak of this process as compensation. Now, this overworked auxiliary organ must sooner or later fail. This is just as true of two parts of the body as it is of two men, one of whom assumes the task of both. For a while the helper may carry the excessive burden, but

he will certainly come sooner or later to a premature breakdown. Now, in this process of compensation all auxiliary organs become taxed to their utmost before failure occurs, and therefore, when the break does come, we can readily see that almost one entire function of the body is interrupted. What then? A machine out of gear, usually what we call a nervous breakdown.

THEIR PREVENTION.

Finally, a word in regard to the prevention of these evil effects. Teachers, by the application of very simple tests, may detect these diseases. That teachers can do this is not opinion, but demonstrated fact, for the Massachusetts State Board of Health says, "We have found the tests made by teachers not less efficient than tests made by specialists." Teachers should never diagnose obstinacy, truancy and dullness in a pupil until the above tests have been applied and eye, ear and throat troubles are excluded. To do so means unjust criticism, ridicule and punishment for an innocent sufferer, and with no other effect than to ruin a child's character. I quote a few typical cases from a recent writer, and remember that these are but examples of thousands of similar cases: A child is dismissed from school for obstinately declaring that the letter between "c" and "t" in "cat" is an "o"; a pupil in her fourth school year was recently brought to me by her teacher with the statement that she did unreasonably poor work in reading for an intelligent and willing child; a boy is punished for being backward. These three cases are typical. Examinations showed that the first child was astigmatic (disease of the eye), and not obstinate; the boy had run a pin into one eye ten years before and destroyed its sight; while the second girl was found to be affected with diplopia (double vision), and in a friendly chat told the following story: "I very often see two words where there is only one. When I was a very little girl I used to write every word twice, then I was scolded for being careless. *So I learned that I must not say two words even when I saw them.*" To apply these simple tests, to detect these troubles and notify parents of their existence before they have done harm, means to many children as great a service as education itself, and means to the teacher nothing less than the discharge of a sacred obligation.

PREVALENCE OF INFECTIOUS DISEASES.

And now, in regard to the prevalence of the second class of diseases that claim the attention of our public schools. These, as I said before, are the infectious and preventable diseases. Every year in the United States alone, 250,000 people die of these preventable diseases. Break this up, so that you can handle it better. This means 690 every day, 29 every hour and 1 every two minutes. In four years this amounts to one million preventable deaths. The cost of all this, including loss of life, loss of time and doctors' bills, amounts to over $400,000,000 per year.

THEIR EFFECT.

The effect of this national loss is a grave individual concern. We are not inclined so to regard it, that is, to see what it means to each of us. We should for our own safety see it in this way. For instance, how few have not at some time contributed a large amount of comfort, time and money to this national tax levied by disease and death? To illustrate, take this simple mathematical problem: It is a fact—a fact easily proved—that over $400,000,000 is lost in this country every year from these preventable diseases, and in this country there are 85,000,000 people. Now divide total loss, $400,000,000, by total population, 85,000,000, and we find the cost per individual to be $4.60 per year. That is a cold, cruel mathematical and scientific fact; you and every woman and child pay on the average a tax of $4.60 per year for these preventable diseases. But this is not all. In how many cases would it be almost sacrilege to even count *any* cost for that which even a small tax for health once could have prevented, but now can never restore!

THEIR PREVENTION.

Finally, a word in regard to their prevention. In this connection I am continually reminded of the story of Naaman. You remember Naaman, the captain of the Syrian hosts, a great man, but a leper, who went down to see the Prophet Elisha to be cured of his loathsome disease. With him he carried his king's letter of credentials and a grand retinue of soldiers and servants. Arriving at Elisha's gate, he notifies the prophet of his arrival and purpose. Elisha, without even going out to meet him, sends him word to go to the Jordan and dip himself seven times. Incensed because Elisha did not come out and make a great ado over him, and discrediting the remedy on account of its simplicity, he turns to depart, when his servants prevail upon him with these words: "My father, if the prophet had bid thee do some great thing, wouldst thou not have done it? How much rather, then, when he saith unto thee, Wash, and be clean?" To-day the public, like Naaman, are sick and dying, according to the above enormous figures, from these preventable diseases. Science or Truth, like Elisha, dignified, never begging or imploring, says: Destroy all expectoration and no more consumption; drain or cover with one ounce of kerosene oil every 15 square feet of stagnant water, and no more malaria; cover all yellow-fever patients with a mosquito net, and no more yellow fever; use cheap sanitary privies and no more hookworms. But the public, like Naaman, proud and incredulous, with a contempt for the simple, preferring remedies that have an element of mysticism about them, like a petted child, must be implored to do these simple things. We public-health officials—and every doctor is one, and every school-teacher should be one—must continue, like Naaman's servants, to implore them until

they cease to breathe disease-laden air; until they cease to drink fecal polluted water; until they cease to eat impure food; until they cease to live upon polluted, hookworm-producing soil; in short, until they obey the command of the goddess Hygeia—Wash and be clean.

A LESSON FROM MEDICAL INSPECTION OF SCHOOLS.

By George H. Martin, Litt. D., Secretary State Board of Education, Boston, Mass.

Medical inspection of school children has been continued long enough and has become sufficiently widespread to justify some rather sweeping generalizations. No large group of children has ever been examined without finding numerous physical defects and disabilities, serious enough not only to affect their school work, but to form a real handicap in their after efforts to secure a livelihood.

These results have been so universal as to warrant the assertion that a community which has not provided through its proper authorities for a thorough-going inspection of its schools is guilty of criminal negligence.

The aggregate amount of discomfort and pain experienced by school children is enough to awaken universal sympathy. The hindrances to school advancement and the consequent waste of effort and of money are matters of serious concern, but the ignorance which lies back of it all and causes it all is a matter of much greater moment.

When by school inspection it is discovered that of more than 400,000 children examined in the school of Massachusetts, 81,000 are defective in vision and 22,000 in hearing; when it is stated on reliable authority that 90 per cent of the school children of Germany have defective teeth and examination shows the same proportion in American towns; when 137 cases of adenoids are reported for a single city; when whole schools are infected with head-lice; we get much new light on school problems, on the subject of backward children, and, perhaps, of delinquent children.

Then we consign the unfortunates to the care of the family physician, send them to the public dispensary or the public clinic, or send the school nurse to look after the cases in the home, and by these means we patch up a few. Some glasses are provided, some teeth cleaned and filled, some adenoids removed, some heads shaved and petroleumized, and many children begin to know the joy of living.

All this is good. It is worth many times what it has cost. But is it enough? Have school people done all their duty when they have

admitted the school physician and the school nurse to the sacred precincts of the school room, when they have sent out the warning notices to the parents?

Supposing that all defects have been discovered and remedied, so that school life goes on without aches and pains. Must we go all over it next year and the next and forever? The Massachusetts law says that every child shall be examined annually for defects and disabilities. There is no statute of limitations. Is there any hope of limitation? Is there any mode of limitation? Or is the social mill to go on grinding out diseased and enfeebled children by the thousands indefinitely!

This is a more fundamental question than how we shall modify and adapt school work and school life to these defectives. That is an immediate and important question. But it deals only with symptoms, while it leaves the disease itself untouched. The disease is ignorance complicated by willful neglect.

That the ignorance of the laws and conditions of health is less dense than it once was is undoubtedly true. The standard of intelligence in these matters has been slowly rising. When Horace Mann wrote his Sixth Report, in which he urged the necessity of instruction in physiology and hygiene, he satirized a schoolgirl of the period:

"Shall a young miss of sixteen, elated with the idea that she is just finishing her education, study rhetoric, and analyze scraps of the speeches of Grecian and Roman orators, when she does not know that the fumes of burning coal will destroy life; and thinks, because she swallows her food and inhales her breath through her neck, that they both pass on to one common cavity in the chest, and hence concludes that respiration and digestion are functions of the same organ? Neither of the above is an imaginary or an extreme case."

Perhaps we are warranted in thinking that such schoolgirls are not to be found.

When twenty years later Herbert Spencer sent out his book on education everybody knew that his gibes at the English country gentleman were based on facts, and that he might have included American gentlemen as well. He said:

"When the country gentleman has paid his daily visit to the stable, and personally inspected the condition and treatment of his horse; when he has glanced at his minor live stock and given directions about them; how often does he go up to the nursery and examine into its dietary, its hours, its ventilation?

"The raising of first-rate bullocks is an occupation on which men of education willingly bestow much time, inquiry and thought. The bringing up of fine human beings is an occupation tacitly voted unworthy of their attention."

There is no doubt that more thought is being given to personal and domestic hygiene. There are more bath tubs and tooth brushes and clinical thermometers in family use; more family dietaries are prepared with regard to the laws of health; architects are more willing to make concessions in the matter of ventilation of public and private buildings. Wells for the family water supply are more remote from sink spouts and privies and barnyards. Communities are more critical as to their water supply and the disposal of their waste, and there is more belief in the necessity and efficiency of pure food laws.

That this improvement is general is shown by the reduction of the number of cases of diphtheria and typhoid fever and tuberculosis—preventable diseases.

More hopeful still is the changed attitude of mind towards diseases. Some cobwebs of superstition have been brushed away and some theologic mists have been dispersed. Probably nowhere to-day, even in the churches which adhere most closely to the ancient formulas, would we hear the lines by Watts found in all the old hymn books:

> Diseases are Thy servants, Lord;
> They come at Thy command.*

The educational forces by which this general uplift has come are many. The medical profession has devoted itself with the finest public spirit to the enlightenment of the people. The campaign against tuberculosis is a splendid example of the energy, the ingenuity and the self-sacrificing ardor of the doctors. The press has had a powerful influence in this direction. There are few magazines and few newspapers which do not discuss with great frequency and, on the whole, with intelligence and force, questions which pertain to public and personal health. Discussions in women's clubs and parents' associations of various kinds have helped.

To all these must be added the influence of the public schools. Physiology and hygiene have been included in the curriculum of many schools for many years, and some of the instruction given has been well selected, well arranged and well presented. To this extent the schools are entitled to credit.

But when we have admitted all this and congratulated ourselves upon the improvement, the disclosures made through medical inspection still confront us and call for action.

The lesson which I have learned is that, in addition to all the other forces making for a better understanding of health conditions, it is the imperative and immediate duty of the schools of all grades to broaden and make more vital their teaching of physiology and hygiene.

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*This hymn was marked, "For Sickbed Devotions."

Compulsory laws exist in nearly all the States, making instruction in these subjects obligatory, but unfortunately the circumstances under which these laws were enacted left the conservative school people everywhere irritated and cold. The law in its purpose and scope was too narrow, limited as it was to the effects of alcohol and narcotics, and the methods prescribed in most States tended to make the work abortive.

The opportunity now exists, and the results of medical inspection furnish the argument, for a new propaganda in favor of health instruction. It should begin in the lowest grade, because the little children not only need to be taught how to care for themselves, but how to care for children still younger. The majority of children of the poorer families, especially of the more recent foreign immigration, have the burden early laid on them of "minding the baby." The following facts are typical:

In a class of fifty children, thirty have the daily care of younger children.

That such care is inevitable is shown by the fact that, in the families represented by these fifty children, thirty-four have four or more children.

The instruction here needs to be simple, direct and sympathetic, absolutely free from technical anatomy and technical physiology. To instruction should be added insistence upon practice, for the end sought is the early formation of right habits. The results of the right sort of teaching will not be found in answers to questions, but in clean hands, faces, teeth, bodies and clothes, in clear eyes and a responsive brain, in a frame erect and elastic, with all the signs of an abundant supply of good red blood. The teaching will also show itself in the luncheons the children bring and in the way they spend their pennies.

In the higher grades the same ends are to be sought, but the instruction should be less purely dogmatic, and knowledge of the organs of the body and their function should furnish a rational basis for hygienic rules. Anatomy should still be kept subordinate. The hygiene of the home and its relation to personal health should be taught. The personal habits of the pupils must still be an object of the teacher's care.

It ought not to be true in any school, as the reports of a school physician show was true in one set of schools, that the pupils in every grade up to the senior class in the high school had on an average four or more decayed and decaying teeth, and the teachers did not know it.

It ought to be said to all teachers and said with emphasis—"These things ought ye to have done at the risk of leaving some other things undone." We hear much about "essentials" in school education. A sound body kept sound by right living is the essential which underlies and conditions all the rest.

In the high schools now a most anomalous condition exists. Not only is physiology not included in the course of study in many high schools, but when it is included it is not required of college preparatory students. So that these people who are to represent the superlative culture of the times are left in ignorance of the means by which they acquire all their learning. They are expected to translate the maxim of Solon, Γνῶθι ϛεαυτον into "Know thyself," and never to obey it. The instruction is less intelligent than that of Mr. Squeers: "Bottiney, noun substantive, a knowledge of plants. When he has learned that bottiney means a knowledge of plants, he goes and knows 'em."

No school system can justify itself, if it fails to require as a major subject in high schools the study of human physiology. It should be so based on the other sciences and so correlated with them as to appeal to the intelligence of the most advanced students, and its relations to sociology should be shown through public hygiene to be so intimate as to fill it with genuine human interest.

Two hindrances have been found to the successful prosecution of this work in the schools. The text-books have been poor, and many of the teachers uninstructed. Text-books are improving and normal schools are making personal and school hygiene more prominent in their training. Much, however, remains to be done.

To-day the physicians, general and special, are more alive to the needs of the times than are the school people. No permanent results of the present agitation for better sanitary conditions, domestic and public, can be hoped for unless the schools co-operate with all the other agencies. The universal need is for a higher order of intelligence respecting all the things that make for health, and the foundation of such intelligence must be laid in the schools.

HOW THE INEXPERT MAY STUDY NATURE WITHOUT BOOKS.*

By Rev. George W. Lay, Rector of St. Mary's School, Raleigh, N. C.

In all education the most important point is to know the thing itself, and not simply to be familiar with some book that tells about it. For example, among a large number who can tell what somebody has written about the Bible, or Shakespeare, there are very

*The above article, appearing in the November issue of North Carolina Education, brings out remarkably well the important bearing of Nature Study on the development of the power of observation; also the pleasure and profit to be derived therefrom. Pursuant to what has been said about health as a Nature Study, this article seems peculiarly adapted to the general purpose of the Teachers' Bulletin.

few who are familiar with the Bible itself, or with the characters of Shakespeare as he has depicted them.

In no study does this point hold more absolutely than in the study of Nature. A book may be a guide, may furnish us with the scientific names of well-known objects, and may tell us how to study; but this book study is of practically no value at all unless it is a mere adjunct to the study of Nature herself. The cultivation of familiarity with natural objects and phenomena about us, and of that habit of observation which is at the foundation of all scientific study, is necessary if we are to make our nature study useful or interesting. Of course, this love for Nature and habit of observation must exist in the teacher before it can be imparted to the scholar.

I wish, however, to point out some facts about the possibility of making children students of Nature without much actual scientific knowledge on the part of the teacher, and without much time to do more than direct them in their individual efforts.

HOW ONE LITTLE BOY BECAME FAMILIAR WITH THE BIRDS.

In a family of several children where the father had no special scientific training, the children have all developed a real love for Natural History, and considerable intelligence in studying it, simply because he began with the oldest when he was four years old and excited his interest in that direction. This boy began with birds, and before he could read had a little notebook in which were entered the names of six or a dozen common birds; and he would spend delightful hours in putting down a mark opposite the name of each bird, knowing the position of the name, although he could not read it. One industrious pair of robins, gathering food for their young on the lawn, enabled him to get a score in a few hours of at least one hundred robins that he had seen in one morning. While hardly scientific, this method of observation at least started him on the right road. A little book, costing only fifty cents, called Bird Guide, No. 2, was his constant companion for many years; and he knew and saw many more birds than his parental instructor.

A HOME-MADE AQUARIUM AND HOW IT WAS USED.

His mother from the first interested him in flowers of the garden and the fields. Later on a jar, such as is used by grocers to keep pickles in, some nine inches in diameter and a foot high with no top, was fitted up as an aquarium, by an afternoon's work in getting specimens from a near-by pond. Only a few of the specimens were seen when collected, but the gravel put in the bottom of the aquarium soon disclosed a number of other objects that had escaped the eye at first.

There were leeches, which are very pretty in water. One was a rare kind with beautiful spots. There were also larvæ of various

insects which looked like little sticks when captured, but soon stuck out their heads and walked along in an enterprising manner. Snails were put in to eat off the green moss which might form on the glass, and they kept the jar free from this moss which otherwise would have obstructed the view. Animalculæ, almost invisible to the eye, could be studied through the side of the jar by the aid of a twenty-five cent magnifying glass. (A pick glass, used for testing cloth.) Some water plants attached to little stones were put in the bottom, and these soon grew and maintained the balance between the animal and vegetable life. The animal life, which includes, of course, the insects, breathes oxygen, and gives out carbonic acid gas; while the vegetable life breathes carbonic acid gas and gives out oxygen. In this way the animal and vegetable life help to maintain each other and keep the water in good condition. If the water got the least bit stagnant, it was only necessary to take a dipper and fill it from the aquarium and pour it back again from a height of a foot or so. This thoroughly aërates the water and renders it unnecessary to disturb the life in the aquarium, which is necessary if the water is changed.

A SALT-WATER AQUARIUM.

One September the father brought from the seashore, a long distance away, an aquarium full of salt water with many kinds of life. The vegetable specimens were more beautiful than those in fresh water, but in both the marine and fresh-water aquarium the pearly bubbles of oxygen thrown off, and caught for awhile among the leaves as they rose to the surface, added much to the beauty of the collection. In this marine aquarium there were crabs, shrimps, barnacles, and many other things, besides the animalculæ. The barnacles, as one sees them usually, are not attractive; but in an aquarium they open and throw out their little feathery appendages and work continually, throwing the water into the inside of their shells in order to feed. All of these things the children studied in little natural aquariums in the holes of the rocks at low tide during the summer. During the winter, as the water evaporated, all the salts of various kinds were left in the aquarium, and it was only necessary to add fresh water. So successful was this that, when they returned to the seashore the following July and wished to take the aquarium jar with them, all the forms of animal and vegetable life were still alive. Once or twice during the winter something died in the aquarium. When this happened all the water was drawn out into buckets, the animals and vegetables put therein, and the stones and sand thoroughly washed in fresh water and everything put back into the aquarium again. In the case of the marine aquarium periwinkle and other sea snails served to keep the aquariums clean from moss.

The interest aroused in the oldest child was naturally imparted to all the others in a greater or less degree.

THE STIMULUS OF COMPETITION.

The father of these children related two instances of the possibilities of making collections anywhere. One day he said: "I will give ten cents to the one that finds the largest number of different flowers in ten minutes." The four children, from eight to fourteen, did not move out of a circle of a hundred feet radius, and at the end of ten minutes the oldest had found twenty-six, and the next oldest twenty-eight, on a perfectly ordinary patch of ground. The six-year-old one came out at the end of five minutes and found fourteen species in the remaining five minutes.

At another time he took a walk with five children, then aged from five to thirteen. In a walk of two miles and back, along a common country road, never going more than ten feet from the road, seventy-five different species of flowers were seen. In this case the prize was for the greatest number of species, the first discovered only of each species to count. This made it necessary for them to observe the character of any species found by one of the other four, in order not to waste time on duplicates. The father himself did not know the scientific name of a single specimen, or the common name of more than a dozen.

At another time these children made a very beautiful exhibit on the porch of fungi (mushrooms, etc.) and mosses, which showed a surprising number of varieties and an interesting variation in color.

HOW THE TEACHER MAY START THE PUPILS TO OBSERVING.

A country teacher with only a few books, or no books at all, can get the pupils to study these things, and to learn to see with their eyes, by merely using a few minutes at recess, or after school, or walking to and from school. Any one can have an aquarium in a school window for a very small expense. Common tumblers or pickle jars can be used to show germination in plants and the effect of various kinds of soil and of moisture in a greater or less degree. Larvæ (caterpillars, grubs, etc.) can be kept with their food in any vacant corner, and the full-grown insect raised from the larvæ through the pupa to the imago, or perfect insect stage. If the larvæ are too "crawly" for the nerves of the teacher, the pupils can be encouraged to bring in all sorts of pupæ. The burrowing specimens can be kept in a box of earth, and those making their chrysalis on trees can be simply hung up until the perfect insect emerges. In the case of the larger moths it will be interesting to cut off carefully with a pair of scissors the end of the cocoon from which the insect emerges. The perfect pupa will then be in sight inside the cocoon, and when it begins to emerge it is very beautiful to watch the slow and graceful unfolding of such a moth as polyphemus, for example.

The writer hopes many teachers will avail themselves of the opportunities that are within the reach of any of them, no matter how

inaccurate at first. Much real scientific information can be gained, and later the scientific names of specimens can be learned by reference to books that can be consulted as opportunity offers once or twice a year. But the main point is that such work as has been outlined will unquestionably create a deep personal interest in all such matters, and produce the habit of accurate observation, which is so essential to all true development, and which will add so much to the joy you can feel in living in such a beautiful and marvelous world.

A SHORT LIST OF VERY HELPFUL BOOKS.

I may add that I hope some of the patrons of our schools are generous enough to spend a trifling sum in furnishing their schools with one of the very few books that will add much to the intelligence of the teacher, or in offering a prize or two for collections by the pupils.

The following are the most useful books. Those marked with a star (*) being the best to start with:

Bird Guide.—Part 1. Water and Game Birds East of the Rockies. *Part 2. Land Birds East of the Rockies. Fifty cents each part. W. B. Clark Co., 26 Tremont St., Boston, Mass.

A Popular Zoolcgy, by A. D. Steele. American Book Co., New York, $1.25.

***How to Know the Wild Flowers,** by Mrs. Parsons, formerly Mrs. Dana. Scribners, New York, $1.75. Includes Southern flowers, which many books do not.

Our Ferns in Their Haunts, by W. N. Clute. T. A. Stokes Co., New York, $2.00.

***Insect Life,** by J. H. Comstock. D. Appleton & Co., New York, $1.50. Tells all about collecting and breeding insects, and management of aquaria, besides giving account of most common insects.

Manual for the Study of Insects, by Comstock. Comstock Pub. Co., Ithaca, N. Y., $3.75. A book of reference by which the teacher may identify any insect likely to be found.

DANGEROUS WATER.

In compliance with chapter 808 of the Laws of 1909, the public are hereby officially notified that the water sold by the Buffalo Lithia Springs Water Company of Buffalo Lithia Springs, Va., and the water sold by Smith's Lithia Water Company of Oxford, N. C., has been found by three successive analyses made by the State Laboratory of Hygiene to be dangerous to the public health.

REVIEW OF DISEASES FOR OCTOBER, 1909.

NINETY-ONE COUNTIES REPORTING.

Ninety-seven counties have superintendents of health.

Except in the case of the more contagious diseases, the superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of noncontagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of October the following diseases have been reported from the counties named:

SMALLPOX.—Catawba, 2 cases; Chowan, 1; Currituck, 2; Davidson, 4; Forsyth, 4; Franklin, 15; Jones, 3; Mecklenburg, 16; Robeson, 1; Surry, 1; Union, 2; Yadkin, 1—12 counties.

MEASLES.—Burke, a few; Caldwell, 1; Carteret, several; Cleveland, a few; Duplin, 6; Johnston, a few; Lincoln, 10; Mecklenburg, a few; Pamlico, 1; Randolph, several; Union, many; Wake, 1—12 counties.

WHOOPING-COUGH.—Alexander, 10; Caldwell, 40; Cherokee, 12; Cleveland, a few; Davidson, 5; Duplin, 8; Durham, a few; Franklin, several; Graham, several; Granville, 8; Harnett, several; Haywood, several; Hertford, 1; McDowell, 2; Mecklenburg, a few; Mitchell, many; Montgomery, 1; Person, 6; Polk, 3; Randolph, a few; Robeson, 2; Transylvania, a few; Wake, 8; Warren, several; Watauga, 4; Wilkes, a few—26 counties.

SCARLET FEVER.—Alamance, 7; Alexander, 3; Alleghany, 1; Ashe, 2; Beaufort, 3; Burke, prevalent; Caldwell, 9; Camden, 30; Catawba, a few; Chatham, 6; Clay, 1; Cleveland, a few; Craven, 5; Currituck, 4; Davidson, 1; Duplin, 4; Durham, 5; Forsyth, 7; Gaston, 1; Granville, 2; Greene, 12; Guilford, 4; Harnett, a few; Henderson, 2; Iredell, several; Johnston, a few; Lee, 1; Lenoir, 4; Macon, epidemic; Mecklenburg, a few; Nash, many; New Hanover, 1; Orange, 2; Person, 4; Rowan, 8; Tyrrell, 1; Union, 8; Vance, several; Wake, 14; Watauga, 40; Wilkes, 1; Wilson, 14—42 counties.

DIPHTHERIA.—Alamance, 16; Alexander, 2; Alleghany, 1; Ashe, many; Beaufort, 6; Bladen, 2; Buncombe, 4; Burke, 2; Caldwell, 7; Camden, 5; Caswell, 2; Catawba, 2; Chatham, 15; Cherokee, 14; Chowan, 1; Columbus, 2; Craven, 5; Davidson, 8; Duplin, 10; Durham, a few; Edgecombe, 29; Forsyth, 4; Franklin, 2; Gaston, 1; Gates, 7; Granville, 21; Greene, 4; Guilford, 9; Halifax, 8; Harnett, a few; Haywood, 12; Henderson, 3; Hertford, 5; Hyde, a few; Iredell, 6; Jackson, 2; Jones, 2; Lee, 5; Lenoir, 30; McDowell, 2; Ma-

con, 4; Martin, 6; Mecklenburg, a few; Mitchell, a few; Montgomery, 3; Nash, 1; New Hanover, 21; Northampton, many; Pamlico, 2; Pasquotank, 1; Perquimans, many; Person, 8; Pitt, 15; Polk, 1; Randolph, several; Robeson, 11; Rowan, 1; Rutherford, 5; Sampson, 8; Scotland, several; Surry, 2; Tyrrell, 2; Union, 3; Vance, a few; Wake, 9; Warren, several; Watauga, 2; Wayne, 1; Wilkes, a few; Wilson, 3; Yadkin, a few; Yancey, 1—72 counties.

Typhoid Fever.—Alamance, several; Alexander, 5; Alleghany, 1; Ashe, 7; Beaufort, 5; Bertie, 4; Bladen, a few; Brunswick, 4; Caldwell, several; Camden, 3; Carteret, several; Caswell, 1; Catawba, 2; Chatham, 4; Cherokee, 1; Cleveland, a few; Columbus, 3; Craven, 3; Davie, a few; Duplin, 12; Durham, 3; Forsyth, a few; Gaston, 3; Gates, 2; Graham, 6; Granville, 4; Guilford, 3; Halifax, 2; Haywood, 2; Hertford, 2; Iredell, 4; Jackson, 2; Lee, 1; Lenoir, 3; McDowell, 6; Macon, 1; Mecklenburg, a few; Mitchell, several; New Hanover, 7; Northampton, several; Onslow, 2; Orange, 1; Pamlico, 5; Pender, a few; Perquimans, 1; Pitt, 2; Polk, 3; Randolph, 5; Robeson, 4; Rowan, 2; Rutherford, 9; Scotland, 3; Surry, 3; Transylvania, a few; Union, 14; Vance, many; Wake, 10; Wayne, 1; Yadkin, a few; Yancey, 1—60 counties.

Malarial Fever.—Cabarrus, prevalent; Camden, prevalent; Currituck, a few; Davidson, prevalent; Davie, prevalent; Johnston, a few; Jones, prevalent; Lenoir, prevalent; Montgomery, 1; Onslow, prevalent; Pender, prevalent; Robeson, prevalent; Warren, prevalent—13 counties.

Malarial Fever, Pernicious.—Franklin, 1.

Malarial Fever, Hemorrhagic.—Bertie, 2; Craven, 2; Franklin, 1; Northampton, several; Pamlico, 2; Wake, 1—6 counties.

Pneumonia.—Alexander, 4; Beaufort, 2; Bertie, 3; Bladen, 1; Caldwell, 15; Chatham, 2; Chowan, 1; Cleveland, a few; Craven, 1; Duplin, 5; Gaston, 3; Gates, 4; Halifax, 2; Haywood, 2; Henderson, 2; Jackson, 3; Jones, 1; Lee, 2; Martin, 3; Mecklenburg, a few; Mitchell, a few; Montgomery, 3; Pasquotank, 1; Randolph, 3; Robeson, 3; Rowan, 1; Scotland, 1; Transylvania, prevalent; Union, 2; Wake, 4; Watauga, 1—31 counties.

Cerebro-spinal Meningitis.—Carteret, 1; Gaston, 1; Hertford, 1; Perquimans, 5; Pitt, 1; Wake, 1—6 counties.

Pellagra.—Rowan, 3.

Influenza.—Alleghany, prevalent; Hertford, prevalent; Macon, prevalent; New Hanover, prevalent; Stanly, prevalent—5 counties.

Cholera, in Hogs.—Epidemic in Beaufort, Columbus, Jones, Northampton, Pender, and Hertford.

Distemper.—Alamance.

No diseases reported from Madison and Swain.

No reports from Anson, Cumberland, Moore, Richmond and Rockingham.

Mortuary Report for October, 1909.

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total Deaths. By Races.	Total Deaths. By Towns.	Deaths under five years.	Stillborn.
Asheville	W.	23,104	28,880	10.9	14.0	1	--	--	1	--	--	1	10	2	--	--	--	4	1	1	--	21	34	3	6
	C.	5,776		27.0		--	--	--	--	--	--	--	5	--	2	1	--	5	--	--	--	13		2	4
Bessemer City	W.	------	1,500	------	7.9	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	1	1	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Burlington	W.	------	6,000	------	9.9	2	--	--	1	--	--	--	--	--	1	--	--	1	--	--	--	5	5	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Chapel Hill	W.	1,000	1,500	36.0	55.9	--	--	--	--	--	--	--	1	--	--	--	--	2	--	--	--	3	7	--	--
	C.	500		96.0		1	--	--	--	--	--	--	--	1	--	--	--	2	--	--	--	4		1	--
Charlotte	W.	------	45,455	------	9.9	1	--	--	1	--	--	1	3	--	3	1	--	12	--	--	--	22	38	7	--
	C.	------		------		1	--	2	--	--	--	2	1	1	2	--	1	5	1	--	--	16		3	3
Cherryville	W.	2,198	2,204	5.4	5.4	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--
	C.	6		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Concord	W.	10,000	12,000	8.4	10.9	--	--	--	--	--	--	1	--	--	2	--	1	3	--	--	--	7	11	4	--
	C.	2,000		24.0		--	--	1	--	--	--	--	--	--	1	1	--	1	--	--	--	4		1	--
Durham	W.	------	22,500	------	13.3	1	--	--	--	--	--	1	3	1	--	--	1	5	--	--	--	12	25	1	--
	C.	------		------		1	--	--	--	--	--	--	5	--	--	--	2	3	2	--	--	13		5	2
Edenton	W.	------	4,500	------	24.0	--	--	--	--	--	--	--	1	--	1	--	--	1	1	--	--	4	9	1	--
	C.	------		------		--	--	1	--	--	--	--	--	--	--	--	2	1	--	--	1	5		1	--
Fayetteville	W.	6,000	10,000	13.9	9.6	--	--	--	--	--	--	--	--	--	1	--	--	6	--	--	--	7	8	2	--
	C.	4,000		24.0		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Forest City	W.	------	------	------	------	--	--	--	--	--	--	--	1	--	--	1	--	--	--	--	--	2	3	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		1	--
Gastonia	W.	------	9,500	------	4.8	--	--	--	--	--	--	--	--	1	--	1	--	1	--	--	--	3	4	1	--
	C.	------		------		--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1		--	--
Goldsboro	W.	6,600	11,000	9.0	9.6	--	--	1	--	--	--	--	2	--	--	--	--	2	--	--	--	5	9	1	--
	C.	4,400		10.9		--	--	--	--	--	--	--	--	--	--	--	--	4	--	--	--	4		1	3
Graham	W.	2,450	2,900	4.8	12.3	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	3	1	--
	C.	450		53.2		--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	2		2	--
Greensboro	W.	16,000	20,000	11.1	11.4	1	--	--	--	--	--	1	3	1	1	1	1	3	1	--	--	15	19	3	--
	C.	4,000		12.0		--	--	--	--	--	--	--	--	--	1	--	--	3	--	--	--	4		1	1
Greenville	W.	------	5,000	------	12.0	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	5	--	--
	C.	------		------		--	--	--	--	--	--	--	--	1	--	1	1	1	--	--	--	4		2	--
Henderson	W.	------	------	------	------	--	--	1	--	--	--	--	--	--	--	--	--	4	--	--	--	5	11	2	--
	C.	------		------		--	--	--	--	--	--	--	2	--	--	--	2	2	--	--	--	6		--	--
Hendersonville	W.	------	4,000	------	24.0	1	--	--	--	--	--	1	1	1	--	--	1	2	--	--	--	7	8	2	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Hertford	W.	------	2,000	------	6.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	1	--	--
	C.	------		------		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1		--	--
Hickory	W.	4,000	5,000	3.0	2.4	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	1	--	--
	C.	1,000		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
High Point	W.	9,000	12,000	7.9	9.0	1	--	--	--	--	--	--	1	--	--	--	--	4	--	--	--	6	9	--	--
	C.	3,000		12.0		--	--	--	--	--	--	--	--	--	--	--	--	2	1	--	--	3		--	--
Kings Mountain	W.	------	4,000	------	15.0	--	--	--	--	--	--	--	2	--	--	--	1	2	--	--	--	5	5	2	1
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	1
Kinston	W.	------	9,250	------	2.5	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	1	2	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Lexington	W.	5,000	6,000	7.2	6.5	--	--	--	--	--	--	--	--	--	1	--	--	2	--	--	--	3	3	--	--
	C.	1,000		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Louisburg	W.	------	2,000	------	18.0	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1	3	--	--
	C.	------		------		--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	2		--	--
McAdensville	W.	2,000	2,015	24.0	23.7	--	--	--	--	--	--	1	2	--	--	1	--	--	--	--	--	4	4	--	--
	C.	15		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Marion	W.	------	1,450	------	8.1	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	1	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total Deaths. By Races.	Total Deaths. By Towns.	Deaths under five years.	Stillborn.
Monroe	W.	------	5,000	------	19.2	2	--	--	--	--	1	--	--	--	--	--	1	3	1	--	--	8	8	3	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Mooresville	W.	------	3,500	------	17.0	--	--	--	--	--	--	--	2	--	--	1	--	1	--	--	--	4	5	1	1
	C.	------		------		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1		--	--
Morehead City	W.	------	------	------	------	1	--	--	--	--	--	--	--	--	1	--	2	1	--	--	--	5	5	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Morganton	W.	------	3,000	------	19.9	1	--	--	--	--	--	--	--	--	--	--	--	5	--	--	--	5	5	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Mt. Airy	W.	------	5,100	------	11.7	--	--	--	--	--	--	--	1	1	--	--	--	2	--	--	--	4	5	2	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
New Bern	W.	7,500	15,000	14.4	15.9	--	--	3	--	--	--	--	1	--	1	--	--	3	1	--	--	9	20	2	--
	C.	7,500		17.5		--	--	2	--	--	--	--	2	1	2	--	--	4	--	--	--	11		2	1
Oxford	W.	2,200	4,000	5.4	3.0	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1	1	--	--
	C.	1,800		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Plymouth	W.	------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	1	2	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Raleigh	W.	14,000	25,000	18.8	18.2	2	--	1	--	--	1	3	--	2	3	2	7	1	--	--	--	22	38	6	1
	C.	11,000		17.4		--	--	--	--	--	4	3	--	3	--	--	6	--	--	--	--	16		2	1
Reidsville	W.	3,034	5,184	3.8	9.2	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1	4	--	--
	C.	2,150		16.6		--	--	--	--	--	--	--	1	1	--	--	--	1	--	--	--	3		1	--
Rocky Mount	W.	6,000	9,000	7.9	15.9	--	--	--	--	--	--	1	--	--	1	--	1	1	--	--	--	4	12	2	2
	C.	3,000		31.9		--	--	--	--	--	--	--	2	--	1	1	--	4	--	--	--	8		1	--
Roxboro	W.	2,000	2,500	18.0	------	--	--	--	1	--	--	1	--	--	--	--	--	1	--	--	--	3	3	1	--
	C.	500		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Salem	W.	3,000	3,400	12.0	14.0	--	--	--	--	--	--	--	--	--	3	--	--	--	--	--	--	3	4	--	--
	C.	400		30.0		--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	1		--	--
Salisbury	W.	12,000	16,000	6.0	6.0	--	--	--	1	--	--	--	--	--	--	--	2	3	--	--	--	6	7	2	--
	C.	4,000		3.0		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1		--	--
Sanford	W.	------	4,000	------	6.0	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1	2	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Scotland Neck	W.	1,167	1,750	51.3	34.2	--	--	1	--	--	--	--	--	--	1	--	--	3	--	--	--	5	5	1	--
	C.	583		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Southport	W.	1,000	1,600	12.0	7.5	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1	1	--	--
	C.	600		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Statesville	W.	------	5,000	------	9.6	--	--	--	1	--	--	--	--	--	--	1	--	2	--	--	--	4	4	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Tarboro	W.	2,710	3,507	17.6	20.5	--	--	--	--	--	--	--	--	--	--	--	3	1	--	--	--	4	6	2	--
	C.	797		30.0		--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	2		--	--
Wadesboro	W.	2,200	3,500	5.4	10.2	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	3	--	--
	C.	1,300		18.3		--	--	--	--	--	--	--	1	--	--	1	--	--	--	--	--	2		--	--
Waynesville	W.	------	3,500	------	13.6	--	--	--	--	--	--	--	1	1	--	--	--	2	--	--	--	4	4	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Weldon	W.	1,300	2,500	9.1	9.6	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	2	--	--
	C.	1,200		9.9		1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1		--	--
Wilmington	W.	------	35,000	------	17.7	1	--	1	--	--	--	1	1	2	2	1	--	16	--	--	--	25	52	2	2
	C.	------		------		--	--	--	--	--	--	1	3	1	4	--	1	17	--	--	--	27		5	6
Winston	W.	14,000	22,000	9.3	13.5	2	--	--	--	--	--	--	--	--	--	--	1	8	--	--	--	11	25	2	1
	C.	8,000		21.0		--	--	--	--	--	--	1	3	--	3	1	1	4	1	--	--	14		4	1
Wilson	W.	5,000	8,500	9.6	8.4	--	--	--	--	--	--	--	--	--	1	--	1	2	--	--	--	4	6	--	--
	C.	3,500		6.8		--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--	2		--	--

Population of the above towns estimated.

County Superintendents of Health.

Alamance.....Dr. T. S. Faucette.
Alexander.....Dr. O. L. Holler.
Alleghany.....Dr. B. O. Choate.
Anson.....Dr. E. S. Ashe.
Ashe.....Dr. J. C. Testerman.
Beaufort.....Dr. P. A. Nicholson.
Bertie.....Dr. John L. Pritchard.
Bladen.....Dr. L. B. Evans.
Brunswick.....Dr. J. Arthur Dosher.
Buncombe.....Dr. D. E. Sevier.
Burke.....Dr. J. R. Anderson.
Cabarrus.....Dr. J. M. Wallace.
Caldwell.....Dr. C. L. Wilson.
Camden.....Dr. C. G. Ferebee.
Carteret.....Dr. W. E. Headen.
Caswell.....Dr. S. A. Malloy.
Catawba.....Dr. T. C. Blackburn.
Chatham.....Dr. L. E. Farthing.
Cherokee.....Dr. J. F. Abernethy.
Chowan.....Dr. H. M. S. Cason.
Clay.....Dr. J. M. Sullivan.
Cleveland.....Dr. T. E. McBrayer.
Columbus.....Dr. H. B. Maxwell.
Craven.....Dr. Joseph F. Rhem.
Cumberland.....Dr. W. S. Jordan.
Currituck.....Dr. H. M. Shaw.
Dare.....
Davidson.....Dr. E. J. Buchanan.
Davie.....Dr. M. D. Kimbrough.
Duplin.....Dr. John A. Ferrell.
Durham.....Dr. N. M. Johnson.
Edgecombe.....Dr. Spencer P. Bass.
Forsyth.....Dr. J. K. Pepper.
Franklin.....Dr. R. F. Yarborough.
Gaston.....Dr. L. N. Glenn.
Gates.....Dr. Geo. D. Williams.
Graham.....Dr. M. T. Maxwell.
Granville.....Dr. S. D. Booth.
Greene.....Dr. W. B. Murphy.
Guilford.....Dr. Edmund Harrison.
Halifax.....Dr. I. E. Green.
Harnett.....Dr. L. J. Arnold.
Haywood.....Dr. J. R. McCracken.
Henderson.....Dr. J. G. Waldrop.
Hertford.....Dr. J. H. Mitchell.
Hyde.....Dr. R. E. Windley.
Iredell.....Dr. M. R. Adams.
Jackson.....Dr. A. S. Nichols.
Johnston.....Dr. A. H. Rose.
Jones.....Dr. A. F. Hammond.
Lee.....Dr. J. P. Monroe.
Lenoir.....Dr. N. A. Whitaker.
Lincoln.....Dr. J. W. Saine.
McDowell.....Dr. Geo. S. Kirby.
Macon.....Dr. S. H. Lyle.
Madison.....Dr. W. J. Weaver.
Martin.....Dr. W. E. Warren.
Mecklenburg.....Dr. C. S. McLaughlin.
Mitchell.....Dr. Virgil R. Butt.
Montgomery.....Dr. C. Deligney.
Moore.....Dr. Gilbert McLeod.
Nash.....Dr. J. P. Battle.
New Hanover.....Dr. W. D. McMillan.
Northampton.....Dr. H. W. Lewis.
Onslow.....Dr. Cyrus Thompson.
Orange.....Dr. C. D. Jones.
Pamlico.....Dr. Daniel A. Dees.
Pasquotank.....Dr. H. T. Aydlett.
Pender.....Dr. Robt. H. Bradford.
Perquimans.....Dr. T. P. McMullen.
Person.....Dr. W. T. Long.
Pitt.....Dr. W. M. Fountain.
Polk.....Dr. W. R. Engel.
Randolph.....Dr. J. V. Hunter.
Richmond.....Dr. N. C. Hunter.
Robeson.....Dr. W. A. McPhail.
Rockingham.....Dr. Sam Ellington.
Rowan.....Dr. M. L. Smoot.
Rutherford.....Dr. E. B. Harris.
Sampson.....Dr. G. M. Cooper.
Scotland.....Dr. K. A. Blue.
Stanly.....Dr. J. N. Anderson.
Stokes.....
Surry.....Dr. John R. Woltz.
Swain.....Dr. A. M. Bennett.
Transylvania.....Dr. Goode Cheatham.
Tyrrell.....Dr. J. L. Spruill.
Union.....Dr. Henry D. Stewart.
Vance.....Dr. E. F. Fenner.
Wake.....Dr. J. J. L. McCullers.
Warren.....Dr. M. P. Perry.
Washington.....Dr. W. H. Ward.
Watauga.....Dr. J. M. Hodges.
Wayne.....Dr. T. M. Bizzell.
Wilkes.....Dr. E. M. Hutchens.
Wilson.....Dr. W. S. Anderson.
Yadkin.....Dr. T. R. Harding.
Yancey.....Dr. W. B. Robertson.

Dr. I. H. Manning

THIS BULLETIN WILL BE SENT FREE TO ANY [illegible] THE STATE UPON REQUEST

BULLETIN

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Vol. XXIV. DECEMBER, 1909. No. 9.

We have heard one or two ill-informed physicians say that "Vital statistics are of no practical value," and so we commence with the reminder of Dr. Fulton, that "Public hygiene is built upon, is controlled, and directed by, and is everlastingly in debt to vital statistics." Indeed, hygiene is impossible as a science, and the progress of medicine would be unmeasured and unrecorded if vital statistics were not collected.—Indiana Health Bulletin.

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*Deceased.

Dr. JAMES A. BURROUGHS.

On going to press the sad news of the death on December 28th of Dr. James A. Burroughs of Asheville reaches us. Dr. Burroughs was President of the North Carolina Medical Society and a member of the North Carolina State Board of Health. No better evidence of the high esteem in which he was held by his profession could be had than the position of honor in the Society, which he held at the time of his death. In his death the cause of public health loses a deeply interested and able supporter.

NORTH CAROLINA SANATORIUM FOR THE TREATMENT OF TUBERCULOSIS.

WHEN ESTABLISHED.

The Legislature of 1907 passed an act appropriating the sum of $15,000 for the establishment of the North Carolina Sanatorium for the Treatment of Tuberculosis. This Legislature at the same time appropriated $5,000 for the support and maintenance of this institution. The Legislature of 1909 made an additional appropriation of $15,000 annually for the years 1909 and 1910, to be used in permanent improvements for the sanatorium. At the same time this Legislature increased the $5,000 annual appropriation for support and maintenance to $7,500 annually.

LOCATION.

The sanatorium is located in the western part of Cumberland County, on the Aberdeen and Rockfish Railroad, nine miles from Aberdeen. It is about twelve miles from Pinehurst and fifteen miles from Southern Pines. In the region of these well-known winter resorts it has an ideal location. The warmer and more uniform temperature of this region gives the Montrose Sanatorium a natural asset, invaluable and yet without cost, which more than counterbalances the better equipment and larger endowment of other more famous sanatoria, which are without this great natural advantage. The air, dried by its journey across the clean white sand of this region, and filtered pure through the needles of the long-leaf pine, is healthful and life-giving.

SITE.

To reach the site of the sanatorium we leave the car at the little station of Montrose, walk up a gentle slope, when suddenly an expanse of view opens before us that is altogether unexpected in this part of the State. Invariably we think of the mountains of Western Carolina. We are then told that we are standing on the plateau of Montrose, 600 feet above sea-level and the highest point in Cumberland County. We get a magnificent view in all directions. In one direction on a clear day one may see a white sand road twelve miles off. So suddenly and distinctly different is the scenery from that of the surrounding country that its very unexpectedness adds interest to its beauty. Indeed, Nature seems to have prepared and set apart this spot for the very purpose to which it is now dedicated.

GROUNDS, BUILDINGS, AND EQUIPMENT.

The sanatorium owns about 1,300 acres of land. A considerable part of this is suitable for farming. There is also much valuable timber on this land. Until August of this year there was but one

building, and this was not supplied with either water or electricity. Since then, that is, within the last four months, great improvements have been made. We now have six buildings, all equipped with modern conveniences, such as an abundance of pure water from a well 200 feet deep, electric lights, and modern sewer arrangements. The buildings are heated by wide open fireplaces, which give a maximum ventilation. All of the buildings are neat in their appearance and their arrangement is in complete accord with the most modern ideas governing the construction of tuberculosis sanatoria. There are two buildings for patients—a one-story and a two-story building. Together, they will accommodate about sixty patients. As the contentment of this class of patients is so essential to their recovery, the building committee have done well to have one of the buildings a casino. Here there are pool tables, a billiard parlor, a piano, and other sources of pleasure and amusement. The white-help building, for nurses and other attendants, is attractive and comfortable. A comfortable servants' quarters will do much to solve the servant problem for the institution. The building committee are now arranging for the construction of two more buildings, one to be a large dining-hall with a thoroughly equipped culinary attachment, and the other to be an administration building, in which there will be, in addition to the executive offices, an auditorium and library. The auditorium will be equipped with a suitable tuberculosis exhibit, stereopticon lantern and attachments for teaching the subject of tuberculosis. The hall will be used as a classroom to instruct the patients in the essential points of the disease. The library will contain literature suitable to this class of patients.

THE LEWIS TRAINING SCHOOL.

The board of directors have decided to name this last mentioned building the Lewis Training School. They did this for two reasons: first, to signalize the importance of certain ideas regarding the educational value of tuberculosis sanatoria expressed by Dr. Richard H. Lewis in his presidential address before the Conference of State and Provincial Boards of Health of North America, May 21, 1906, and, second, to emphasize this phase of the work at Montrose. In the above address Dr. Lewis, among other things, said:

"Looking at the question still from our point of view—that of prevention first, and cure incidentally and secondarily—it is my opinion that a modification of the present management of sanatoria would be more effective. Instead of being conducted as institutions for the cure of patients while present, it would be wisest, in my humble opinion, to conduct them rather as tuberculosis schools. Patients, instead of being allowed to remain, on an average, six months, should be strictly limited to one month. By this arrangement 1,200 instead of 200 consumptives could be accommodated in the year. In that time

they could be thoroughly instructed in sanatorium methods, both as to prevention and cure, and could continue the treatment at their own homes. Upon leaving the sanatorium a statement of their exact physical condition, ascertained by the real experts in diagnosis employed by the institution, should be given them, as well as a printed copy of the sanatorium regulations, for the benefit of the family physician. They should keep in touch with the sanatorium by correspondence, either directly or through their physicians, and receive therefrom such further advice as might be indicated. While it is not claimed that this method would be as successful in bringing about cures as the six months' continuous treatment in the sanatorium itself, I do not think it unreasonable to assume that at least one-sixth as many cures would result, in which event the number cured would be the same and the educational effect would be six times as great. I sincerely believe, however, that the total number of cures would be actually greater and the number of cases prevented, in their own families, especially by the proper care of their sputum, habits as to coughing, kissing, etc., would be very greatly increased over the present plan."

The Lewis Training School will include, in addition to this central building, two pavilions, each of about twenty beds capacity. All patients entering the sanatorium will spend their first month in the training school. During their stay in the training school they will be taught not only how to care for themselves, but also how to avoid infecting others. At the end of a month, if the case is curable, the patient will be transferred to one of the pavilions for curables. If the case is not curable, the patient will return home. But the patient at home, now, is quite different from the one who left there a month before. He not only knows how to care for himself better—availing himself of the slim chance that may yet remain to get well—but, what is really more important, he knows how to avoid infecting others; and in practicing this prevention, he becomes a veritable missionary to the many who are dying for the want of this gospel of prevention.

PAST HISTORY.

The board of directors, enthusiastic over the possibilities of the sanatorium and anxious to open it in time to demonstrate its wide field of usefulness to the Legislature of 1909, with a view to securing the necessary appropriation to make it an assured success, opened the institution November 6, 1908. The directors now frankly admit that their enthusiasm over the prospects, and their anxiety to secure continued and necessary support, caused them to open the sanatorium before it was ready for the reception of patients.

Dr. J. E. Brooks, who took charge of the sanatorium as superintendent, was greatly hampered in the discharge of his duties by this premature opening. He did not have the necessary facilities for the

treatment of the tuberculous. At that time there was but one building. This was unscreened and unlighted. It was necessary to haul water from springs a half mile from the sanatorium. There were no quarters for director, nurses, or even servants. Manifestly, the superintendent held a position which it was difficult, if not impossible, for him to fill with any degree of satisfaction to himself or others. There is convincing evidence that it was unsatisfactory to Dr. Brooks in the fact that he called the attention of the directors to the insurmountable difficulties and requested them to close the institution until the necessary additions and changes could be made. There is also evidence in the form of letters from members of the medical profession and laity, that conditions in the sanatorium were far from satisfactory. Several of these letters criticising the management of the sanatorium were received by the writer before he assumed his official responsibilities, and of course no action was taken in regard to them. On July 15, fifteen days after assuming the duties of this office, the first complaint of conditions at Montrose reached the writer officially. Dr. C. A. Julian, Assistant Secretary for Tuberculosis of the Board of Health, and Secretary of the North Carolina Society for the Study and Prevention of Tuberculosis, was asked to go, without notification, to Montrose, inspect the sanatorium, and report to the office of the Secretary of the State Board of Health. This he did, reaching the sanatorium and inspecting it July 16, and reporting to the Secretary of the State Board of Health July 19.

Dr. Julian's report showed the sanatorium to be in an unsanitary condition. In fact, the crude and incomplete equipment, although responsible to a considerable extent for these unsanitary conditions, could not excuse conditions as they were found by the inspector. They did palliate, but did not excuse Dr. Brooks for the condition in which the sanatorium was found. A copy of this report was at once mailed to the president of the board of directors, and as soon as he could arrange for the patients to go elsewhere he closed the sanatorium. This was August 1st. Since that date the many improvements, mentioned under Grounds, Buildings, and Equipment, have been made.

While these changes were being made, the writer has received several letters requesting him to exert himself to secure the resignation of Dr. Brooks as superintendent, a position to which he was elected in May of this year. Now, while the board of directors do not excuse the past lax management of the institution, at the same time they recognize the fact that their obligation to the cause of justice should outweigh their desire to please the critics of Dr. Brooks. Moreover, this board cannot conform to its conception of justice by requesting the resignation of a man whose untiring efforts brought the importance of such an institution to the attention of the Legislature and secured its establishment; whose heart has been so wrapped up in the welfare of the sanatorium that when its funds

were scarce he has taken his own money to defray the running expenses; whose past management, although an admitted failure, is considerably palliated by the fact that had the board of directors acted upon his advice, it would not have occurred. In the face of these facts, to request the resignation of one who has done a great service for his State, in contributing more than any one else to the establishment of the sanatorium, and who has never had half a chance, would be, in the opinion of the board of directors, ingratitude and injustice for which they will not be responsible.

REOPENING.

The sanatorium will be again opened about the first of February. With our present equipment there is no reason why North Carolina should not accomplish great good for her white-plague victims. The board of directors are deeply in earnest in their efforts to make the sanatorium a success in every way, and in the mind of the writer there is not the slightest doubt that they will succeed.

THE VALUE OF VITAL STATISTICS.

Vital statistics have two indispensable values: a public health value and a legal value.

To the sanitarian vital statistics are what the chart and compass are to the mariner. Without them he knows not whence he came nor whither he goes.

They are the best record of the achievements of our profession's past. The oldest vital statistic records—those of Geneva—go back three centuries. During this time they show an increase in the average duration of life from 21.2 to 39.7 years, or an increase of 18.5 years. Most of the vital statistics do not go back of the year 1800. However, the comparative records of even a part of a century teach important lessons, and record facts that would otherwise never be known. For example, in England and Wales, from 1838 to 1900, there has been an increase in the average duration of life from 40.8 to 45.9 years, or a lengthening of 5.1 years. This rate of increase would amount in a century to a lengthening of 8.2 years. In France, from 1817 to 1903, there has been an increase in the average duration of life from 39.5 to 45.4 years, or a lengthening of 5.9 years. This is at the rate of 6.8 years per century. In Prussia, from 1867 to 1900, there has been an increase in the average duration of life from 36.6 to 42.8 years, or a lengthening of 6.2 years. This rate of increase would in a century amount to 18 years increase in the average life. In Denmark, from 1835 to 1900, there has been an increase in

the average duration of life from 43.6 to 51.7 years, or a lengthening of 8.1 years. This in a century would amount to an increase of 12.4 years. In Sweden, from 1816 to 1900, there has been an increase in the average duration of life from 41.5 to 52.2, or a lengthening of 10.7 years, an increase at the rate of 12.7 years per century. In the United States so little attention has been paid to vital statistics, and they have been collected so short a time, that little or no conclusions can be drawn from them. On the other hand, there are a number of instances where they teach important lessons, and record important achievements the loss of which would very much impoverish medical history. For example, in 1905 Colonel Gorgas was put in sanitary control of the Canal Zone. At that time the death rate per 1,000 per year was 65.41. Since then it has been reduced to 24.83. This means for the population of this area a saving of 4,860 lives annually. Again, vital statistics show the effect of the discovery of the mosquito origin of yellow fever. In the city of Havana, from 1850 to 1900, there was an average annual death rate from yellow fever of 750 lives. Since the extermination of mosquitoes as a means of preventing yellow fever, beginning in 1901, there has been not more than four deaths a year in Havana from this disease. Examples similar to the above could be multiplied almost indefinitely, but enough has been said to convince all unprejudiced minds that these records are well worth the time and trouble it requires to collect them. Vital statistics, therefore, have an important historical value, composing much, and embellishing the whole of the history of medicine.

The value of vital statistics is not entirely confined to the past. They serve to warn as well as to record. A timely warning, an opportune application of the ounce of prevention, often saves innumerable lives. For example, the vital statistics for a certain town shows that this town has twice the average death rate of other towns in which the same climatic conditions prevail. This fact, but for these statistics, would escape notice, for people die slowly, and neighbors, without some comparative record, would regard their deaths as natural. An investigation follows the disclosure of these statistics, and the cause of this increased death rate is discovered. The cause is removed, or proper precautions are taken to prevent its continued morbid effect, and many lives are saved as a result.

Again, some measure of supposed sanitary value is put in operation. Its value will be measured, almost wholly, by the statistical returns. If it is without effect, the cost of operating it will be saved; if it is life-saving, others may know and take advantage of it.

And now, as to their legal value, I can do no better than quote from Governor Hastings of Pennsylvania, in his message to the Legislature of that State:

"In an enlightened community there live but few people of mature age whose birth, marriage, or death does not at some time become a

matter for the cognizance and consideration of legal authorities. The attainment of majority with its rights and duties, the fact and date of wedlock, the inheritance or conveyance of property, parentage and nationality, place, date and cause of death, and interment, and many other questions of a sociological, economic, sanitary, or even historical character, often assume much importance with reference to many of our citizens. In the absence of a State system of registration, many of the citizens are deprived of their legal rights or are enabled to deprive their fellows of their legal rights.

"The deeds of the murderer, the abortionist, or the suicide can be easily concealed from human view until decomposition has obliterated all evidences of crime. To obviate these dangers effectually it seems to be necessary to require the issuing of a burial permit by some constituted authority, and to make this issue contingent upon the presentation of satisfactory information respecting the cause of death. This official act ought to be made the first step in the State registration of deaths."

Another important legal use of death certificates, filed in accordance with our vital-statistics law, is in the case of insurance companies who refuse for various reasons to acknowledge the death of a policyholder and pay the amount of insurance. In the courts of this State a copy of the original certificate, officially certified and obtained from this office, becomes *prima facie* evidence of the facts therein set forth, and could be used by the deceased's executor as legal proof of death.

The scope of our vital-statistics law is very limited. A complete vital-statistics law would require the registration of births and deaths for the entire State. At present there is no law requiring the registration of births. There should be one, for three reasons: first, that we may know the rate of increase in our population—an economic reason; second, births frequently become matters of great legal importance; third, any regulation of the child-labor problem will depend very much upon the existence of reliable birth certificates by which the correct and legal age of a child may be easily obtained.

Another limitation of our vital-statistics law is that it only applies to those towns of the State that had a population of one thousand inhabitants or over, according to the last decennial census. Of course, the same reasons for the registration of the death of a townsman would hold good for the registration of the death of a countryman. However, to enforce the law for the entire State, town and county, it would require an additional appropriation of something like $3,000 for the necessary office force. At the same time it is doubtful whether the public understanding of the value of these laws is sufficient to produce the public sentiment necessary for their enforcement.

NOTICE TO LOCAL REGISTRARS.

Read, Read Carefully, and Avoid Future Trouble.

INTRODUCTORY.

The law requiring the registration of deaths in all towns of the State that had a population of one thousand or over, according to the last decennial census, was passed by the Legislature of 1909, and was first put into effect September of this year.

The last four months have been given over by the State Registrar to training the local registrars in regard to their new official duties. During this time they have made great improvement over their work of the first month or so. This is evident from the number of faulty certificates returned during the first three months. The first month 77 per cent were returned; the second month 16 per cent were returned, and the third month only about 10 per cent were returned. At present the work of the majority of local registrars is entirely satisfactory, but there are some who continue to send in certificates showing the grossest mistakes.

These mistakes are not due to any inability of the local registrars to perform the duties of their office, but are the result solely of carelessness, and are, therefore, inexcusable. It is to prevent further mistakes of this kind, and to save some of the local registrars and the State Registrar disagreeable legal proceedings that this is written.

THE REGISTRATION LAW MUST BE ENFORCED.

As stated above, the last four months have been given over to training local registrars in regard to the enforcement of this law; from now on, it will be rigidly enforced. This action is not optional with the State Registrar, but obligatory. See chapter 722, section 3, a part of which reads: "The State Registrar shall procure and distribute all blanks and instructions necessary for the execution of this act, and shall see that the provisions of this act are faithfully enforced; and the solicitors of the several districts and the Attorney-General shall aid him, upon his request, and enforce the penalty of the law in case of its violation."

Now, if the State Registrar should *not* comply with this specific requirement of the State laws, his disobedience may become evident at any time in the courts of the State, and subject those for whom he is agent to serious liabilities. For example, the law—that is, the expressed will of the people—furnishes a certificate of standard form, and at the same time supplies the necessary machinery and power to have this certificate properly filled out. Then the law further says: Such a certificate "shall be *prima facie* evidence of the facts

therein set forth in all the courts of the State." On the admissibility of such a certificate as evidence in a court, a large amount of insurance, property, or even a life, may depend. Now, suppose that the certificate that would have this important bearing on a case is not to be found in the State Registrar's office, or suppose the one found is very incomplete, and abounds in careless mistakes: would the court admit such a certificate as competent evidence? If it could be shown in such a case that the State Registrar was derelict, then the State through an incompetent agent would very probably be held responsible, and, if responsibility and accountability go hand in hand, accountable.

A third reason for the rigid enforcement of this law is that unless it is fully and accurately complied with the results are misleading, and to be misled is worse than not to be led at all. In other words, better no registration of deaths than an inaccurate registration.

A last and fourth reason is that unless this work is done correctly it will be unsatisfactory and unacceptable to the United States Government and to the rest of the world. Our statistics will have only a local value.

DIRECTIONS.

The first duty of the local registrar is to carefully read the law for the registration of deaths. The law is so explicit that it seems superfluous to explain. It will at least be unnecessary to say that no certificate will be accepted that is filled out, or even partly filled out with a lead pencil; that no unsigned certificate will be accepted; that no certificate from a town that has a municipal health officer will be accepted when signed by the local registrar in the blank for the doctor under the medical certificate of death; that no certificate will be accepted that is not properly numbered; that no certificate the writing on which is illegible will be accepted, and that signatures with only the initials as signatures will not be accepted. It is important, too, that the informant's name and address always be given. Where the information contained in the certificate is insufficient, the State Registrar may wish to communicate directly with the informant.

It is hardly necessary to say that the attending physician fills out only the medical certificate of death; nothing more.

Judging from several letters received from local registrars, it would appear that they had supposed that it was incumbent upon them to look up the data necessary to fill out the blanks. Of course, this is not necessary. The local registrar simply refuses his permit until the party applying for the removal or burial permit produces a certificate properly filled out. If the body is removed before this is filled out and a permit granted, then the local registrar's duty is to report the case to the mayor and to the State Registrar.

W. S. RANKIN,
State Registrar.

DANGEROUS WATER.

In compliance with chapter 808 of the Laws of 1909, the public are hereby officially notified that the water sold by the Buffalo Lithia Springs Water Company of Buffalo Lithia Springs, Va., has been found by three successive analyses made by the State Laboratory of Hygiene to be dangerous to the public health.

REVIEW OF DISEASES FOR NOVEMBER, 1909.

EIGHTY-FIVE COUNTIES REPORTING.

Ninety-seven counties have superintendents of health.

Except in the case of the more contagious diseases, the superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of noncontagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of November the following diseases have been reported from the counties named:

SMALL-POX.—Bladen, 12 cases; Catawba, 3; Chowan, 1; Craven, 3; Currituck, 2; Davidson, 3; Duplin, 1; Forsyth, 18; Gaston, 1; Greene, 15; Guilford, 2; Johnston, 6; Jones, 6; McDowell, 10; Mecklenburg, 21; Nash, many; Rockingham, 6; Rowan, 3; Rutherford, 10; Surry, 4; Union, 5; Wake, 8; Wayne, 8; Wilson, 44—24 counties.

MEASLES.—Cabarrus, several; Carteret, many; Cleveland, a few; Davidson, 12; Duplin, 2; Gaston, many; Mecklenburg, a few; Randolph, 10; Rowan, 2; Sampson, a few; Union, many—11 counties.

WHOOPING-COUGH.—Caldwell, 25; Cleveland, a few; Davidson, 10; Durham, a few; Graham, several; Granville, 4; Harnett, several; Haywood, many; Henderson, a few; Hertford, 20; Johnston, 4; Mecklenburg, a few; Person, 8; Polk, 4; Robeson, 10; Union, a few; Wake, 10; Warren, a few; Watauga, 2; Wilkes, a few—20 counties.

SCARLATINA.—Alamance, 4; Alleghany, 1; Ashe, 2; Beaufort, 5; Caldwell, 12; Catawba, a few; Chatham, 1; Cleveland, a few; Durham, 2; Edgecombe, 2; Forsyth, 11; Gaston, several; Granville, 3; Greene, 3; Harnett, 10; Henderson, 4; Hertford, 1; Iredell, 2; Johnston, 8; Lenoir, 5; Martin, 2; Mecklenburg, a few; Nash, many; New Hanover, 1; Person, 3; Rowan, 4; Transylvania, a few; Wake, 19; Wilson, 2—29 counties.

DIPHTHERIA.—Alamance, 5; Alleghany, 1; Ashe, 3; Beaufort, 5; Bladen, a few; Brunswick, 9; Buncombe, 5; Burke, 2; Cabarrus, 2; Caldwell, 3; Carteret, 6; Caswell, 2; Catawba, a few; Chatham, 8;

Cherokee, 80; Chowan, 1; Columbus, 1; Davidson, 2; Duplin, 10; Durham, 4; Edgecombe, 10; Forsyth, 2; Gates, 5; Granville, 15; Greene, 1; Guilford, 10; Harnett, several; Haywood, 8; Henderson, 3; Hyde, 3; Iredell, several; Jackson, 3; Johnston, 2; Jones, 1; Lenoir, 10; Martin, 1; Mecklenburg, a few; Montgomery, 1; Nash, 5; New Hanover, 15; Northampton, several; Onslow, several; Orange, 5; Pamlico, 3; Pasquotank, 2; Person, 1; Pitt, 2; Rockingham, a few; Rowan, 2; Rutherford, 1; Sampson, 10; Scotland, 3; Surry, 1; Transylvania, 2; Tyrrell, 4; Union, 3; Vance, a few; Wake, 7; Watauga, 2; Wilkes, a few; Wilson, 2—61 counties.

Typhoid Fever.—Alamance, 7; Alleghany, 2; Bertie, 3; Bladen, a few; Brunswick, 2; Burke, a few; Cabarrus, 1; Caldwell, a few; Carteret, a few; Caswell, 1; Columbus, 3; Durham, 2; Forsyth, a few; Gaston, 5; Graham, 5; Granville, 1; Guilford, 1; Harnett, a few; Haywood, 3; Hertford, 3; Jackson, a few; Johnston, 1; Lenoir, 5; McDowell, 3; Madison, 1; Mecklenburg, a few; Montgomery, 1; New Hanover, 1; Pender, 3; Pitt, 1; Randolph, 4; Robeson, 15; Rockingham, a few; Rutherford, 3; Scotland, 3; Surry, 2; Transylvania, 8; Union, 7; Vance, a few; Washington, 2; Wayne, 1; Wilkes, a few; Yadkin, several—43 counties.

Malarial Fever.—Cabarrus, prevalent; Davidson, prevalent; Onslow, prevalent; Robeson, prevalent—4 counties.

Malarial Fever, Pernicious.—Greene, 1; Hyde, 2; Wake, 1—3 counties.

Malarial Fever, Hemorrhagic.—Bertie, 2; Chowan, 1; Craven, 2; Gates, 3; Hyde, 2; Martin, 3; Northampton, 3; Washington, 1—8 counties.

Pneumonia.—Alleghany, 1; Beaufort, 1; Brunswick, 1; Cabarrus, several; Caldwell, 10; Catawba, a few; Chatham, 2; Cleveland, a few; Columbus, 1; Craven, 6; Davidson, 4; Duplin, 4; Durham, 3; Gaston, 1; Gates, 2; Graham, 1; Harnett, several; Haywood, 8; Henderson, 2; Hyde, 1; Jackson, 6; Johnston, 3; Jones, 2; Lee, 1; Lenoir, 3; McDowell, 1; Mecklenburg, a few; Montgomery, 1; Pitt, 1; Polk, 3; Randolph, 3; Robeson, 20; Rowan, 3; Sampson, a few; Scotland, 2; Stanly, prevalent; Surry, 2; Transylvania, a few; Tyrrell, 3; Union, 3; Washington, 1; Wilkes, a few; Yancey, a few—43 counties.

Cerebro-spinal Meningitis.—Beaufort, 1; Caldwell, 1; Durham, 1; Montgomery, 1—4 counties.

Influenza.—Alamance, prevalent; Alleghany, prevalent; Currituck, a few; Hertford, prevalent; Montgomery, 5—5 counties.

Pellagra.—Lincoln, 1; Surry, 1; Union, 5—3 counties.

Cholera, in Hogs.—Epidemic in some parts of Beaufort.

Distemper, in Horses.—In Union.

No reports received from Alexander, Anson, Cumberland, Davie, Franklin, Halifax, Macon, Mitchell, Moore, Perquimans, Richmond, and Swain.

No diseases reported from Clay.

SUMMARY OF THE MORTUARY FOR NOVEMBER, 1909.

	White.	*Colored.*	*Total.*
Aggregate population	169,682	71,985	241,667
Aggregate deaths	264	213	477
Temporary annual death rate per 1,000.	18.6	35.2	15.1
Cause of Death.			
Typhoid fever	14	8	22
Scarlet fever	1	0	1
Malarial fever	2	1	3
Diphtheria	4	0	4
Whooping-cough	0	1	1
Measles	1	1	2
Pneumonia	18	23	41
Consumption	29	33	62
Brain disease	24	11	35
Heart disease	24	17	41
Neurotic diseases	11	10	21
Diarrhœal diseases	17	9	26
All other diseases	104	91	195
Accident	12	7	19
Suicide	3	0	3
Violence	0	1	1
Total (excluding still-born, but including deaths under five years old)	264	213	477
Of this total the number of deaths under five years old was	57	48	
Still-born	15	26	

Mortuary Report for November, 1909.

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total Deaths. By Races.	Total Deaths. By Towns.	Deaths under five years.	Still-born.
Albemarle	W.	------	2,000	------	6.0	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1	1	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Asheville	W.	24,000	30,000	6.9	8.7	1	--	--	--	--	--	1	6	--	2	--	--	3	1	--	--	14	22	1	1
	C.	6,000		15.9		--	--	--	--	--	--	--	2	1	--	--	--	5	--	--	--	8		1	2
Bessemer City	W.	------	1,500	------	7.9	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	1	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Burlington	W.	------	6,000	------	13.9	--	--	--	--	--	--	--	2	1	--	--	--	3	--	--	--	6	7	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	1		--	--
Chapel Hill	W.	1,000	1,500	12.0	15.9	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1	2	--	--
	C.	500		24.0		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1		--	--
Charlotte	W.	------	45,000	------	14.6	1	--	--	--	--	--	--	1	5	3	3	2	9	2	--	--	26	55	5	3
	C.	------		------		1	--	1	--	--	--	3	2	2	2	--	1	16	1	--	--	29		4	8
Cherryville	W.	2,198	2,204	10.8	10.8	--	--	--	--	--	1	--	1	--	--	--	--	--	--	--	--	2	2	--	--
	C.	6		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Concord	W.	10,000	12,000	2.4	4.9	1	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	2	5	--	--
	C.	2,000		18.0		--	--	--	--	--	--	--	--	--	--	--	--	3	--	--	--	3		1	--
Durham	W.	------	22,500	------	11.1	1	--	--	--	--	--	2	1	1	--	--	1	5	--	1	--	12	21	2	--
	C.	------		------		--	--	--	--	--	--	1	2	--	--	1	--	5	--	--	--	9		3	--
Edenton	W.	------	4,500	------	15.9	--	--	--	--	--	--	2	--	--	--	--	1	--	--	--	--	3	6	--	--
	C.	------		------		1	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	3		2	--
Elizabeth City	W.	6,000	10,000	12.0	15.6	--	--	--	--	--	--	--	--	1	2	--	1	1	1	--	--	6	13	--	--
	C.	4,000		21.0		1	--	--	--	--	--	1	--	--	--	--	--	5	--	--	--	7		--	2
Fayetteville	W.	6,000	10,000	13.9	18.0	--	--	--	--	--	--	--	--	--	1	3	--	3	--	--	--	7	12	1	1
	C.	4,000		15.0		--	--	--	--	--	--	--	2	--	--	1	--	2	--	--	--	5		1	1
Forest City	W.	------	------	------	------	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	1	1	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Gastonia	W.	------	9,500	------	7.8	--	--	--	--	--	--	1	--	2	--	--	--	2	--	--	--	5	7	3	--
	C.	------		------		--	--	--	--	--	--	1	--	--	--	1	--	--	--	--	--	2		1	--
Goldsboro	W.	------	------	------	------	--	--	--	--	--	--	--	--	--	1	--	2	2	--	--	--	5	13	3	--
	C.	------		------		1	--	--	--	--	--	1	1	1	--	--	--	3	1	--	--	8		4	--
Graham	W.	2,450	2,900	9.7	8.1	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2	2	1	--
	C.	450		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Greensboro	W.	16,000	20,000	7.1	12.0	1	--	--	1	--	--	2	1	--	2	--	--	3	--	1	--	11	20	1	3
	C.	4,000		27.0		--	--	--	--	--	--	1	1	--	3	1	--	3	--	--	--	9		2	2
Greenville	W.	------	5,000	------	12.0	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	2	5	1	--
	C.	------		------		--	--	--	--	--	--	--	2	--	--	--	--	1	--	--	--	3		1	1
Henderson	W.	------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	5	--	--	--	5		1	--
Hertford	W.	------	2,000	------	18.0	--	--	--	--	--	--	--	--	--	1	--	--	1	--	--	--	2	3	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	1		--	--
Hickory	W.	4,000	5,000	3.0	7.2	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1	3	--	--
	C.	1,000		24.0		--	--	--	--	--	--	--	--	--	1	--	--	1	--	--	--	2		--	--
High Point	W.	9,000	12,000	7.9	10.9	1	--	--	--	--	--	--	--	1	--	--	--	5	1	--	--	8	11	3	1
	C.	3,000		12.0		--	--	--	--	--	--	1	--	--	--	--	--	1	1	--	--	3		1	1
Kings Mountain	W.	------	4,000	------	24.0	--	--	--	--	--	--	1	4	--	--	1	--	1	--	--	--	7	8	2	2
	C.	------		------		--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	1		--	--
Lexington	W.	5,000	6,000	4.8	6.0	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--	2	3	2	--
	C.	1,000		12.0		--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1		--	--
Marion	W.	------	1,500	------	39.9	2	--	--	--	--	--	--	--	--	--	--	1	2	--	--	--	5	5	2	1
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Monroe	W.	------	5,000	------	34.6	--	--	--	--	--	--	--	--	--	--	--	1	7	--	--	--	8	14	2	--
	C.	------		------		--	--	--	--	--	1	2	1	--	--	--	--	2	--	--	--	6		2	2
Mooresville	W.	------	3,500	------	6.8	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2	2	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total Deaths. By Races.	Total Deaths. By Towns.	Deaths under five years.	Still-born.
Morehead City	W.	------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--	2	2	1	1
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Morganton	W.	------	3,000	------	27.9	2	--	--	--	--	--	--	--	--	--	--	--	1	1	1	--	5	7	--	--
	C.	------		------		1	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	2		--	--
Mt. Airy	W.	------	5,100	------	8.6	--	--	--	--	--	--	1	1	--	--	1	--	1	--	--	--	4	4	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
New Bern	W.	7,500	15,000	11.1	18.3	1	--	2	--	--	--	--	--	1	--	--	--	3	--	--	--	7	23	1	--
	C.	7,500		25.5		--	--	--	--	1	--	4	1	2	1	--	1	6	--	--	--	16		7	1
Newton	W.	3,000	3,250	12.0	11.0	--	--	--	--	--	--	1	--	--	--	--	--	2	--	--	--	3	3	1	--
	C.	250		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Oxford	W.	2,200	4,000	5.4	6.0	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	2	1	--
	C.	1,800		6.6		--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	1		1	1
Raleigh	W.	14,000	25,000	15.3	20.1	--	1	--	1	--	--	1	1	4	2	--	1	7	--	--	--	18	42	5	--
	C.	11,000		26.1		--	--	--	--	--	--	5	7	1	--	2	--	8	1	--	--	24		7	1
Randleman	W.	------	2,800	------	4.2	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1	1	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Reidsville	W.	3,034	5,188	15.7	16.0	1	--	--	--	--	--	--	1	--	--	1	--	--	1	--	--	4	7	--	--
	C.	2,154		16.6		--	--	--	--	--	--	--	--	--	1	--	2	--	--	--	--	3		--	--
Roanoke Rapids	W.	2,000	2,025	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	25		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Rocky Mount	W.	6,000	9,000	12.0	10.5	--	--	--	--	--	--	2	--	--	--	3	1	--	--	--	--	6	8	3	--
	C.	3,000		7.9		--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	--	2		--	--
Roxboro	W.	2,000	2,500	12.0	14.4	--	--	--	1	--	--	1	--	--	--	--	--	--	--	--	--	2	3	1	--
	C.	500		24.0		--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1		--	--
Salem	W.	3,000	3,400	12.0	10.2	--	--	--	--	--	--	--	--	--	1	--	--	2	--	--	--	3	3	1	1
	C.	400		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Sanford	W.	------	4,000	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Salisbury	W.	12,000	16,000	9.0	14.1	--	--	--	--	--	--	2	--	--	--	--	2	3	2	--	--	9	19	3	--
	C.	4,000		30.0		--	--	--	--	--	--	--	2	--	1	1	--	5	--	--	1	10		--	--
Scotland Neck	W.	1,200	1,800	19.9	33.2	--	--	--	--	--	--	1	--	--	--	--	--	1	--	--	--	2	5	--	--
	C.	600		60.0		--	--	--	--	--	--	--	2	--	--	--	1	--	--	--	--	3		1	--
Shelby	W.	------	4,000	------	4.8	--	--	--	--	--	--	--	--	--	1	--	--	1	--	--	--	2	2	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Statesville	W.	------	5,000	------	14.4	--	--	--	--	--	--	1	1	--	--	--	--	3	--	--	--	5	6	2	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		1	--
Tarboro	W.	2,800	3,600	12.8	23.2	--	--	--	--	--	--	--	1	--	--	--	--	1	1	--	--	3	7	--	--
	C.	800		60.0		1	--	--	--	--	--	1	1	--	--	--	--	1	--	--	--	4		1	1
Wadesboro	W.	2,200	3,500	5.4	6.8	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1	2	--	--
	C.	1,300		9.1		--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1		--	--
Washington	W.	------	10,000	------	8.4	--	--	--	--	--	--	--	--	2	--	--	--	3	1	--	--	6	7	4	--
	C.	------		------		1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1		--	--
Waynesville	W.	------	3,500	------	3.3	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1		--	--
Weldon	W.	1,300	2,500	9.1	4.8	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1	1	--	--
	C.	1,200		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Wilmington	W.	------	35,000	------	16.0	1	--	--	--	--	--	2	--	4	1	--	--	12	--	--	--	20	47	2	--
	C.	------		------		1	--	--	--	--	--	--	3	3	5	--	2	12	1	--	--	27		2	2
Wilson	W.	5,000	8,500	7.2	8.4	--	--	--	--	--	--	--	--	--	--	--	--	3	--	--	--	3	6	--	--
	C.	3,500		10.2		--	--	--	--	--	--	--	--	--	--	--	1	1	1	--	--	3		1	1
Winston	W.	14,000	22,000	12.0	11.8	1	--	--	--	--	--	1	3	--	4	1	--	4	--	--	--	14	20	2	1
	C.	8,000		9.0		--	--	--	--	--	--	2	--	1	1	1	--	1	--	--	--	6		2	--

Population of the above towns estimated.

County Superintendents of Health.

Alamance	Dr. T. S. Faucette.
Alexander	Dr. O. L. Holler.
Alleghany	Dr. B. O. Choate.
Anson	Dr. E. S. Ashe.
Ashe	Dr. J. C. Testerman.
Beaufort	Dr. P. A. Nicholson.
Bertie	Dr. John L. Pritchard.
Bladen	Dr. L. B. Evans.
Brunswick	Dr. J. Arthur Dosher.
Buncombe	Dr. D. E. Sevier.
Burke	Dr. J. R. Anderson.
Cabarrus	Dr. J. M. Wallace.
Caldwell	Dr. C. L. Wilson.
Camden	Dr. C. G. Ferebee.
Carteret	Dr. W. E. Headen.
Caswell	Dr. S. A. Malloy.
Catawba	Dr. T. C. Blackburn.
Chatham	Dr. L. E. Farthing.
Cherokee	Dr. J. F. Abernethy.
Chowan	Dr. H. M. S. Cason.
Clay	Dr. J. M. Sullivan.
Cleveland	Dr. T. E. McBrayer.
Columbus	Dr. H. B. Maxwell.
Craven	Dr. Joseph F. Rhem.
Cumberland	Dr. W. S. Jordan.
Currituck	Dr. H. M. Shaw.
Dare	
Davidson	Dr. E. J. Buchanan.
Davie	Dr. M. D. Kimbrough.
Duplin	Dr. John A. Ferrell.
Durham	Dr. N. M. Johnson.
Edgecombe	Dr. Spencer P. Bass.
Forsyth	Dr. J. K. Pepper.
Franklin	Dr. R. F. Yarborough.
Gaston	Dr. L. N. Glenn.
Gates	Dr. Geo. D. Williams.
Graham	Dr. M. T. Maxwell.
Granville	Dr. S. D. Booth.
Greene	Dr. W. B. Murphy.
Guilford	Dr. Edmund Harrison.
Halifax	Dr. I. E. Green.
Harnett	Dr. L. J. Arnold.
Haywood	Dr. J. R. McCracken.
Henderson	Dr. J. G. Waldrop.
Hertford	Dr. J. H. Mitchell.
Hyde	Dr. R. E. Windley.
Iredell	Dr. M. R. Adams.
Jackson	Dr. A. S. Nichols.
Johnston	Dr. A. H. Rose.
Jones	Dr. A. F. Hammond.
Lee	Dr. J. P. Monroe.
Lenoir	Dr. N. A. Whitaker.
Lincoln	Dr. J. W. Saine.
McDowell	Dr. Geo. S. Kirby.
Macon	Dr. S. H. Lyle.
Madison	Dr. W. J. Weaver.
Martin	Dr. W. E. Warren.
Mecklenburg	Dr. C. S. McLaughlin.
Mitchell	Dr. Virgil R. Butt.
Montgomery	Dr. C. Deligney.
Moore	Dr. Gilbert McLeod.
Nash	Dr. J. P. Battle.
New Hanover	Dr. W. D. McMillan.
Northampton	Dr. H. W. Lewis.
Onslow	Dr. Cyrus Thompson.
Orange	Dr. C. D. Jones.
Pamlico	Dr. Daniel A. Dees.
Pasquotank	Dr. H. T. Aydlett.
Pender	Dr. Robt. H. Bradford.
Perquimans	Dr. T. P. McMullen.
Person	Dr. W. T. Long.
Pitt	Dr. W. M. Fountain.
Polk	Dr. W. R. Engel.
Randolph	Dr. J. V. Hunter.
Richmond	Dr. N. C. Hunter.
Robeson	Dr. W. A. McPhail.
Rockingham	Dr. Sam Ellington.
Rowan	Dr. M. L. Smoot.
Rutherford	Dr. E. B. Harris.
Sampson	Dr. G. M. Cooper.
Scotland	Dr. K. A. Blue.
Stanly	Dr. J. N. Anderson.
Stokes	
Surry	Dr. John R. Woltz.
Swain	Dr. A. M. Bennett.
Transylvania	Dr. Goode Cheatham.
Tyrrell	Dr. J. L. Spruill.
Union	Dr. Henry D. Stewart.
Vance	Dr. E. F. Fenner.
Wake	Dr. J. J. L. McCullers.
Warren	Dr. M. P. Perry.
Washington	Dr. W. H. Ward.
Watauga	Dr. J. M. Hodges.
Wayne	Dr. T. M. Bizzell.
Wilkes	Dr. E. M. Hutchens.
Wilson	Dr. W. S. Anderson.
Yadkin	Dr. T. R. Harding.
Yancey	Dr. W. B. Robertson.

Dr I H Manning

THIS BULLETIN WILL BE SENT FREE TO ANY CITIZEN OF THE STATE UPON REQUEST

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RESPONSIBILITY OF STATE AND COUNTY HEALTH OFFICIALS.

Introductory.—When contagious and preventable disease affects a community, destroying health and life, wide-awake and well-informed people frequently ask: Are there no laws to check the spread of this disease? Who are responsible for the enforcement of these laws?

The reply to the first question is, Yes, there are laws to check the spread of preventable disease. Every civilized country testifies its belief in the preventability of disease by the enactment of such laws. There are, then, laws to protect life as well as stock and real estate. These are known as public-health laws.

Classification.—Public-health laws may be divided into *State* public-health laws and *County* public-health laws. County public-health laws are applicable to those conditions that affect one county independently of other counties. State public-health laws are applicable to those conditions that are not influenced by county lines.

*Deceased.

Necessity for State Public-Health Laws.—There are conditions affecting the public health, the operations of which extend beyond the county borders, conditions manifestly beyond the control of the county affected. These conditions are *inter* and not *intra* county concerns. It is evident that if such conditions are controlled at all, they must be controlled by the State. Conditions within State jurisdiction are the public water supplies, the registration of deaths, and the sanitary conditions of State institutions.

The reasons for this are perfectly clear. The only available water supply of a town may be taken from a river that flows through another county, before reaching the one in which the town supplied is located. Under such conditions the necessary, just, and only protection of the purity of this water supply must be furnished by the State. Take the law requiring the registration of deaths: If each county had its own system of death registration there would be no uniformity, and, for comparison, the records would be almost valueless. The State must control the administration of this law if it is to be worth anything. The sanitary conditions of State institutions that care for the afflicted and criminal, not of one county, but of the entire State, should be, as they are, under State control.

The principal State public-health laws entrusted to State officials for enforcement are the laws protecting public water supplies from pollution and the law requiring the registration of deaths.

Official Machinery to Enforce State Public-Health Laws is supplied by sections 4435, 4436, and 4441 of the Revisal of 1905, as amended. These sections authorize the Governor to appoint five, and the North Carolina Medical Society to elect four, of the regular registered physicians of the State, who, together, shall constitute the State Board of Health. This board then elects a secretary, who is chosen from the regular registered physicians of the State. The secretary is the executive officer of the board and the State Health Officer.

Legal Power to Make Effective Official Machinery.—First, to protect public water supplies: Section 3058 of the Revisal as amended, subsection (*c*), requires all water companies, whether owned by an individual, private corporation, or municipality, to file maps of their water-sheds with the Secretary of the State Board of Health; if they have wells, they are to file maps showing the surroundings of these wells, with the same official. These maps show the boundary of the water-shed, the calculated number of acres or square miles, the amount of cultivated, old-field, wooded, and pasture land on the water-shed. The number of houses, barns, pig-pens, privies, factories, and other buildings on the shed, and their relation to the stream. It must show all roads in their relation to the water-shed. Finally, these maps are to be certified before a notary public to be correct, and then filed, as above stated, in duplicate. A penalty of from $50 to $100 is

to be imposed on any of the said water companies refusing or failing to file the maps. Each calendar month that this neglect continues subjects the offending water company to a renewal of the fine. Subsection (*b*) of section 3058 of the Revisal, as amended, forbids any of the said companies to alter their water supply in any way, without first notifying the Board of Health and obtaining their approval. This subsection is enforceable by a penalty of from $50 to $200.

Section 3045 of the Revisal, as amended, requires the water companies supplying the public to have a sanitary inspection of their water-shed made every three months, in accordance with instructions furnished them by the State Board of Health. The results of these inspections, written on blank forms furnished by this office, are certified to be correct and mailed to the Secretary of the State Board of Health. Failure on the part of any water company owned by any individual or private corporation to file the above quarterly reports of the inspection of the water-shed, subjects them to a deduction of $25 by the town supplied, from the water rents due the company from the town. If the town owns its own water supply, the official responsible for not making the quarterly inspection and reports is subject to a fine of from $10 to $25.

Section 3057 of the Revisal, as amended, requires that all companies selling water to the public shall have this water examined *monthly* by the State Laboratory of Hygiene. This law is enforceable by an adequate penalty.

With all this data, a complete and correct map of the water-shed, a quarterly report of sanitary conditions present on the shed, and the monthly report from the Laboratory of Hygiene of the analysis of the water, the Board of Health is kept in very close touch with the conditions of public water supplies. If the laboratory analysis shows some impurity, it is easy to turn to the map and see the threatening points. Perhaps a recent report from the sanitary inspector has already called attention to conditions which the laboratory report proves to be operative. The danger is then detected. Before serious loss of health or life results, under the authority vested in the Board of Health by subsection (*a*), section 3058 of the Revisal, as amended, the danger is removed and health and life are protected. A part of this subsection of section 3058 reads: "The said board shall make such rules and regulations as in its judgment may be necessary to prevent contamination and to secure such purification as may be required to safeguard the public health. Any individual, firm, corporation, or municipality or the person or persons responsible for the management of the water supply, failing to comply with said rules and regulations, shall be guilty of a misdemeanor and upon conviction shall be fined or imprisoned, or both, at the discretion of the court." Under the authority of this subsection the

Board of Health has promulgated in "Circular B" the rules necessary for the sanitary care of premises located on water-sheds.

It is, therefore, readily seen that the official machinery for the enforcement of the State public-health law for the protection of public water supplies has been very wisely provided with the necessary power to protect health and life from impure public water supplies.

Second, no one can read the vital-statistics law without being impressed with the ample provision of power to enforce this law. See chapter 722, Revisal of 1905, as amended. A part of section 3 of this chapter reads: "The State Registrar shall procure and distribute all blanks and instructions necessary for the execution of this act, and shall see that the provisions of this act are faithfully enforced; and the solicitors of the several districts and the Attorney-General shall aid him, upon his request, and enforce the penalty of the law in case of its violation."

The Responsibility of State Public-Health Officials.—Provided with the aforesaid power, commanded and paid by the taxpayers of the State to use it for the protection of the health and life of the public, the responsibility resting upon the Board of Health is great. For example, with the ample power for the protection of public water supplies that we have, an epidemic of typhoid immediately traceable to the public water supply of any town puts the Board of Health on trial. If the board has not enforced the law requiring the filing in duplicate of certified maps of the water-shed; if they have not this map to acquaint them with conditions on the water-shed; if they have permitted a town to use water from a dangerous water-shed; if they have not kept in touch with sanitary conditions on this shed by enforcing the law requiring the quarterly filing of sanitary reports; and if they have not enforced the law requiring the monthly examination of the water from such a supply, they have been derelict in the performance of a sacred duty, and the probability would be very great that loss of health and life under such circumstances would be largely attributable to their nonperformance of this duty.

Or, take the vital-statistics law, and consider the responsibility for its nonenforcement. Sooner or later the courts will be called upon to decide the disposition of a large amount of insurance or property, and the whole case will hinge upon the evidence of a death certificate. Now, suppose that this certificate is not to be found in the State Registrar's office, as is provided in the law; suppose the one found there abounds in such omissions and evidences of carelessness that the courts will not accept it as competent evidence. In such a case the burden is upon the State Registrar to explain why the law has not been enforced.

Liability of State Officials for Nonperformance of Duty would not differ from the liability of county health officers and will be considered under that subdivision.

Necessity for County Health Laws.—These are conditions affecting the public health of a single county—conditions that are an *intra* and not an *inter* county concern. Over such conditions the county government should exercise control. Not to do so would be a flagrant violation of that fundamental principle of democracy which not only allows, but requires a community to govern itself, and, through the experience gained by self-government, become educated to a higher plane of citizenship. The local government is not only the most educational in effect, but the least expensive to operate. Unless the local forces operate it, they don't wish it, are opposed to it, and for the State to undertake the administration of local government under these conditions is too expensive to be practicable. Hence the advisability, if not the necessity, of the county authorities exercising jurisdiction over conditions that affect the public-health interest of their own county and no other county.

The principal county public-health laws are the quarantine law and the law for the abatement of nuisances.

Official Machinery for Enforcing County Health Laws is a board of county commissioners authorized by sections 1311 and 1312 of the Revisal of 1905 and elected by the people of the county. The board of commissioners, with two of the registered physicians of the county, compose the county sanitary committee. One of the physicians on the county sanitary committee is appointed by the chairman of the board of county commissioners, the other by the mayor of the county town. This committee, composed of the board of commissioners and the two physicians, elect one of the registered physicians of the county superintendent of health. This last official is the executive officer of the board of commissioners to look after the health interests of the county, and to see to the enforcement of those health laws entrusted by the State to the county officials. In an incorporated town, section 4509 of the aforesaid Revisal provides that the board of aldermen may elect a municipal health officer, and that this officer, with the board of aldermen, shall have the same jurisdiction and responsibility within the corporate limits of the town as is held by the county superintendent and board of county commissioners outside of the town limits.

Legal Power of Official Machinery.—In order that those elected and paid to administer the quarantine law, that is, the county health officers, it is necessary that they be notified of the existence of contagious disease. Legal authority compelling this notification is found in sections 3443 and 3448 of the Revisal, as amended. Section 3443 makes it a misdemeanor, punishable by a fine of from $1 to $50 for a householder who knows of a case of diphtheria, scarlet fever, or

smallpox in his family not to immediately notify the health officer within whose jurisdiction he lives. Section 3448 makes it a misdemeanor, punishable by a fine of from $10 to $25 for a physician who knows of a case of diphtheria, scarlet fever, or smallpox in his practice not to notify immediately the health officer within whose jurisdiction the case occurs. Having had the case brought to his attention, it is next necessary that the health officer have power to compel, if need be, the family to observe his instructions. This power is provided in section 3449 of the Revisal of 1905, as amended, a part of which reads: "If any person shall neglect or refuse to comply with or in any way violate the rules promulgated by the county superintendent of health on the subjects of quarantine and disinfection, he shall be deemed guilty of a misdemeanor, and upon conviction shall be fined or imprisoned, at the discretion of the court, not less than $5 nor more than $50, or imprisoned not less than ten nor more than thirty days." It is, therefore, readily seen that the quarantine law in itself is a most efficient law. In fact, it would be difficult, if not impossible, to improve it.

For the abatement of nuisances, adequate power is provided in section 3446 of the Revisal of 1905. This section subjects the owner on whose premises the nuisance exists to a fine of $1 a day for every day the nuisance remains after having received official notice to remove it.

Still other power for the protection of the public health of counties and towns is provided by sections 4454, 4455, 4506, 4451, and 3455 of the Revisal, as amended.

Section 4454 authorizes the authorities of cities or towns "to make such regulations, pay such fees and salaries and impose such penalties as in their judgment may be necessary for the protection and the advancement of the public health." .

Section 4455 gives the board of county commissioners the right to levy a special tax, and to spend it for the protection and advancement of the public health of their county.

Section 4506 empowers boards of county commissioners to quarantine against neighboring States when contagious disease in such State threatens the public health of one of the border counties of this State.

Sections 4451 and 3455 give unlimited power for compulsory vaccination.

Sections 4450 and 3446 give such ample power to the county superintendent of health for the abatement of nuisances that after his attention is called to their existence he and those he represents, the county commissioners, are alone responsible for their continued ill effect. With such authority as above provided, the nonenforcement of quarantine cannot be charged to inadequate laws.

RESPONSIBILITY OF COUNTY PUBLIC HEALTH OFFICERS IN MATTERS OF QUARANTINE.

Fixed Responsibility.—Having amply provided power to enforce quarantine, it only remains to fix the responsibility to make the quarantine, so far as it is in itself concerned, effective. It would be impossible to more definitely fix responsibility for the enforcement of any law than the manner in which the responsibility for the enforcement of the quarantine law is fixed upon the county superintendent of health. See section 4508 of the Revisal of 1905, as amended. Except in incorporated towns, when the municipal health officer (see section 4509, Revisal 1905, as amended) has the jurisdiction of the county superintendent of health, the responsibility for quarantine rests upon the county superintendent of health, and upon him alone. Other doctors may, and do, quarantine, but their quarantine is neither legal nor official, unless they are deputized by the county superintendent of health or the municipal health officer, and, of course, when so deputized, they are but the agent of the county superintendent of health or municipal health officer, and, therefore, do not remove his responsibility.

Test of Efficiency.—The quarantine law, with ample power for enforcement and with responsibility for enforcement clearly fixed, is in itself all that could be desired. The nonenforcement of this law, therefore, be it observed and remembered, is due not to defects in the law, but to defects in the officials to whom its execution is entrusted. *The best test of the ability of a health officer is the number of cases of contagious diseases in his jurisdiction.*

No Perfect Law.—Of course, we all know that in the hands of the most efficient health officer, under present conditions, the quarantine law does not prevent every case of diphtheria, scarlet fever, measles, and smallpox; we are, at the same time, cognizant of the fact that the criminal law does not prevent all murders, thefts, etc., however ably it may be administered. Therefore, whoever would abolish the one on the ground that it is not an absolute preventive of conditions against which it was enacted, to be consistent, must abolish the other also. That no government would do this is clear from the fact that every intelligent government professes its belief in the necessity for and the effectiveness of quarantine in the laws enacted for this purpose.

Importance Compared with Criminal Law.—The great importance of enforcing this law will be at once realized by comparing some figures taken from an authoritative source, the Mortality Report of the Bureau of the Census of the United States Government for the year of 1907. During that year there was 5,500 lives lost from murder. During the same period of time there was 55,000 lives lost

from the five contagious diseases, diphtheria, whooping-cough, measles, scarlet fever, and smallpox. It is an estimate open to criticism for its conservatism to say that at least half of these 55,000 lives, or 27,500, could have been saved by proper quarantine administration. In the United States every day we bury 15 people because a criminal law, supported by an undivided public opinion and a large appropriation, is powerless to save life; in the United States every day we bury 75 people because the quarantine law was not enforced as it should have been, were it given one-fifth the financial and moral support given the other. What ado we make over *one victim* of a murderer compared with the fatal inertia with which we gaze upon *five victims* of an inefficient health administration! One the result of a sin of commission, the other the result of a sin of omission; the result in each the same, except the latter cost five times the former.

Result of Nonenforcement.—Notwithstanding such responsibility for its enforcement, the quarantine law is more abused than any other health law. The greater number of complaints made to this office against health officers are for the nonenforcement of this law. In reply to these complaints, it is somewhat embarrassing to have to inform the complainants that the State Board of Health has absolutely no jurisdiction in matters of inland quarantine. Right here is the weak place in our whole public-health system. An inefficient county superintendent of health, elected and retained in office by a responsible board of county commissioners, may neglect or refuse to quarantine or disinfect, until an epidemic in his county spreads and involves other contiguous and even distant counties. In this way it is in the power of a board of county commissioners to permit their county to become a hotbed for the dissemination of disease, a public nuisance, and an expensive neighbor to sister counties, and even other States. When the epidemic spreads beyond the county borders in which it originates and begins to involve other counties, it passes from an intra- into an inter-county concern, and should, therefore, cease to be within the jurisdiction of the county, and at that time come within the jurisdiction of the State.

PLANS FOR ENFORCING QUARANTINE.

Authority.—Section 4437 of the Revisal, as amended, says, among other things: "The Board of Health shall take cognizance of the health interest of the people of the State; shall make sanitary investigations and inquiries in respect to the people, employing experts when necessary; shall investigate the causes of disease dangerous to the public health, especially epidemics, the sources of mortality, the effect of locations, employments and conditions upon the public health. They shall gather such information upon all these matters for distribution among the people, with the especial purpose of informing them about preventable diseases." Please note the use of the imperative "shall," and especially note that the purpose of gathering "such information" is not to file it away in the office, but "for distribution among the people." Here, in lieu of court authority for enforcing quarantine, the Board of Health is provided with a still stronger means of quarantine enforcement—a plan of publicity for the protection of the innocent from the careless and indifferent. Such a plan will operate by publishing the facts showing who is responsible for the prevalence of contagion with its cost in money, health, and life. According to this plan, the guilty will be brought before the high court of public opinion for trial. The effect of this publicity will be doubly beneficent: educational in its effect upon the public, compulsory in its effect upon those who need compulsion.

Plan.—The plan of publicity for enforcing quarantine is as follows: Health officers, county and municipal, will be asked to fill out blank forms containing the following questions:

1. How many independent foci* of infection with ..... [In this blank will be written either smallpox, diphtheria or scarlet fever] have you had?

2. State place, date of occurrence, and origin of each independent focus of infection.

a. .....

b. .....

c. .....

These facts collected, tabulated, and published, will show those concerned—the public—what health officer is spreading disease. For example, suppose the health officers in counties A, B, C, D, and E report respectively 3, 5, 1, 4, and 2 smallpox foci of infection, a total of 15 foci of infection, in their counties. Suppose, further, that twelve of these foci of infection are clearly traced by the five different health officers, testifying independently, to their origin in county X.

*NOTE.—By focus of infection, as here used, is meant a series of cases traceable to an individual case that was contracted within the jurisdiction of another health officer.

County X, in the face of this severe confirmatory indictment, will now very probably claim that the disease in counties A, B, C, D, and E was not contracted from county X, and attempt to prove this by giving the date of the beginning in county X *later* than the dates given for the beginning of the disease in counties A, B, C, D, and E. This matter may be easily determined by the State Health Officer when he investigates the dates of the first cases in X and the other counties. In this way it can at once be seen where the source of inefficient health administration is located; and with the trouble located, a public opinion educated by actual observation as to the importance of proper enforcement of quarantine will go a long way in punishing a health officer who is responsible for a large amount of sickness with its consequent loss of life and money.

Application of Plan.—When a contagious disease appears in the jurisdiction of a health officer, he has two kindred responsibilities. To the State he is responsible for the spread of the disease from his jurisdiction to other parts of the State. To those within his jurisdiction, his constituency, he is responsible for the way in which he controls the epidemic. Whether he does this effectively or not, may be judged by comparing the number of cases of the diseases, and its cost to the commissioners or aldermen, with similar data from other health officers' jurisdictions.

Now, the above plan of publicity is more applicable to the discharge of the first than to the second of the aforesaid responsibilities. This is so for two reasons: first, the Board of Health is naturally more concerned with matters that affect a large part of the State than with matters affecting a single county; second, the afflicted county can protect itself by the removal of inefficient health officials if it so desires, and it should hardly expect the State Board of Health to help those who will not help themselves. However, the State Board of Health can be of considerable assistance to those who live within the jurisdiction of an inefficient health officer, by supplying them with comparative figures. These figures would show the number of cases, the number of deaths, and the expense to the county of a particular contagion, as compared with similar data from the jurisdiction of other health officers. The next BULLETIN will show comparisons of this kind—comparisons that will probably interest those concerned about public health, and prove instructive to county commissioners and boards of aldermen who may have innocently wasted public funds in inefficient health work.

Refusal of Health Officer to Co-operate.—Right here the question arises as to the effect of the refusal or neglect of a county superintendent of health to co-operate in this plan of publicity. Certainly a few, probably 20 or 30 per cent, will be indifferent in endorsing this plan. Of course, this refusal would take away the only means of the State Board of Health to protect their county from the careless

health administration of another county, and leave them solely responsible, of which fact the public would be notified through THE BULLETIN of the State Board of Health and their own county press. Such refusal of co-operation would in no wise give the health officer concerned in the case of neglected quarantine immunity from the condemnation of neighboring health officers' administrations, who would note and publish through the enforcement of the above plan all cases of contagious diseases contracted from his county.

As will readily be seen, the effectiveness of this plan rests with the county and municipal health officers. If 50 per cent endorse it, and will co-operate with the State Board of Health it will be effective. The press and all other influences guiding, controlling, and making public opinion may do humanity a service through the prevention of many unnecessary cases of illness and death, if they will give this effort to make answerable those responsible for the spread of contagion their earnest support.

Extension of Plan.—This plan is capable of extension beyond the county and town health officers to the individual physicians within their jurisdictions. Extended thus, the county superintendent of health or municipal health officer, as the case may be, would first write a letter to every physician within his jurisdiction, informing them of the nature of the plan, asking their co-operation, and further stating that the origin of contagious disease in their county would be investigated, tabulated, and published either monthly or yearly. If 50 per cent of the physicians within the jurisdiction of such a health officer would co-operate the plan can be made practicable. If they will not, it can still be made practicable by the board of county commissioners or board of aldermen paying their health officer enough to enable him to give sufficient time to the health interests within his jurisdiction to ascertain these points for himself. The data obtained regarding the origin of preventable diseases, tabulated and published in the local press, would show from which physician's practice an undue number of contagious diseases originate. A similar report a month or a year later would begin to focus public attention on the disease spreader, and when a few deaths were shown to be due to cases contracted from his practice, public sentiment would either remove him as a cause of disease dissemination or reform him.

Objection.—It may be objected that this plan will occasionally do an innocent health officer or practitioner an injustice, by charging a case or cases to him that he could not possibly have prevented. Certainly an occasional case of contagion will spread from the jurisdiction or practice of the most careful. But, as one can see at a glance, this publicity plan is one of comparison and averages, and it is not the individual cases, but the total number of cases chargeable to one for a given period of time that tells the true story of responsibility.

Another objection that might be raised, is that such a method of comparison would put the health officer with a large jurisdiction at a great disadvantage with one having a small jurisdiction. The health officer with a large jurisdiction, say 10,000 population, should receive ten times the salary of a health officer with a jurisdiction of only 1,000. Again, the health officer with the large jurisdiction, as a rule, has a concentrated population, often a city or town; and while concentrated populations furnish a natural predisposition to epidemics, it is much easier to control an epidemic where the people are not scattered and one can get around easily. The smaller and more scattered populations, although not so predisposed to epidemics, are more difficult to manage in matters of quarantine. The advantages and disadvantages of the large and small health jurisdictions practically cancel each other, and do away with an objection to the above plan that is more apparent than real.

Still another apparent objection is that when applied by the county superintendents of health or the municipal health officers to the physicians within their jurisdiction, such a plan for publicity would put the practitioners with large practice at a disadvantage when compared with the practitioner with a small practice. This objection is remediable by publishing with the number of cases attributed to any practicing physician the income from his practice, which can be obtained from the tax collector's report.

The probable value of this plan to the State, if it can be enforced properly, may be forceably expressed in dollars and cents, by employing Irving Fisher's figure of the value of the average life, and multiplying this by the calculated number of deaths in North Carolina which result from inefficient quarantine. As above stated, in the United States there are 27,500 lives lost from inefficient quarantine annually. As North Carolina has approximately one forty-fifth of the population of the United States, her part of lives lost from inefficient quarantine would be one forty-fifth of 27,500, or approximately 600 lives. Fisher's figure as to the value of the average American life is $1,700. This figure is the result of a very careful research. Six hundred lives at $1,700 each amount to $1,020,000 per year.

In conclusion, let it be understood that this plan of publicity for controlling contagious diseases and educating the people in matters of disease prevention, would be enforced only when public sentiment demanded it. At an early date a letter, with a copy of the blank form for reports, will be mailed to every health officer in the State. He will be asked to accept or reject the plan for his jurisdiction and to notify this office of his action. This will be published in his local press, as well as in THE BULLETIN.

LIABILITY OF HEALTH OFFICIALS.

Bearing upon the responsibility of State and county officials for enforcing quarantine, and more particularly the liabilities of these officials, is the following opinion of Attorney-General Bickett, written in reply to the following questions:

1. What power has the State Board of Health to require the county officers entrusted with the authority to quarantine to enforce quarantine laws?

2. What redress has a man who has lost his health, or the health or life of some member of his family from a contagious disease, where there is proof that such disease was contracted from a preceding disease of the same nature, which should have been, but was not, quarantined?

3. Is the county, through its agents, the board of county commissioners and county superintendent of health, liable for damages in such a case?

DR. W. S. RANKIN, January 6, 1910.
Secretary State Board of Health,
Raleigh, N. C.

DEAR SIR:—Yours of the 28th ult. received. You wish to know what power the State Board of Health has to require the county authorities to quarantine, and also what redress an individual would have who has lost his health or life from a contagious disease which should have been, but was not, quarantined.

Answering the first question, it seems that the State Board of Health has very little power over the county authorities to require them to quarantine and enforce the health laws. Almost complete charge of the matter seems to have been placed in the authorities of the respective counties. By section 4444 of the Revisal, as amended, the law gives to the State board authority to appoint a county superintendent of health, if the county board does not do it, and to fix his salary; but outside of that section there seems to be no law where they can require them to enforce the health law. By section 4438 of the Revisal, the State board is given sanitary jurisdiction in certain instances; but that is a different proposition. They are given jurisdiction to act themselves, but not to compel the county board of health to do so.

Of course, there are certain things the superintendent of health must do, such as to make reports to the State board in certain cases, etc., and there is a penalty attached if this is not done; but outside of that, I do not see where the law provides that you can force the county authorities to proceed in the matter.

It seems that the State Board of Health, under the present law, is more of an advising board than anything else. Section 4437 of the Revisal, in laying down their duties, says they shall investigate diseases, gather such information as they can, "for distribution among the people with the special purpose of informing them about preventable diseases." They shall investigate the health conditions of all State institutions "and make a report as to their sanitary conditions, with suggestions and recommendations to their respective boards of directors and trustees."

Section 4439 provides that they issue bulletins and advise freely to check the invasion of disease in any part of the State.

From the foregoing it seems that your board, under the present law, is limited almost exclusively to advising instead of directing the county health authorities. Section 4444 says: "The county sanitary committee shall have immediate care and responsibility of the health interest of their county."

As to the second proposition: One cannot get a judgment against a county when the statute does not so provide, as in this case. The courts have held a number of times to that effect. It is different, though, with respect to towns. They may be sued and a judgment procured against them. In case the boards of health should fail or neglect to perform their duties in appointing health officers, and by such abuse of their duty should cause a person to lose his life or health, when it would have been otherwise if the members of the board had done as they were required by the law to do, then, I think, that would constitute a good cause of action for damages. If the authorities are county officers, the suit would have to be brought against the members individually; but if town officers, the action might be brought against the town or city. But if the boards have used their discretion in appointing a superintendent of health, and have not grossly abused their discretion, then I do not think a cause of action would lie against them.

Very truly yours,

T. W. BICKETT,
Attorney-General.

By G. L. JONES,
Law Clerk.

DANGEROUS WATER.

In compliance with chapter 808 of the Laws of 1909, the public are hereby officially notified that the water sold by the Buffalo Lithia Springs Water Company of Buffalo Lithia Springs, Va., has been found by three successive analyses made by the State Laboratory of Hygiene to be dangerous to the public health.

REVIEW OF DISEASES FOR DECEMBER, 1909.

SEVENTY-THREE COUNTIES REPORTING.

Ninety-seven counties have superintendents of health.

Except in the case of the more contagious diseases, the superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of noncontagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of December the following diseases have been reported from the counties named:

SMALLPOX.—Alamance, 23; Bladen, 6; Burke, a few; Caldwell, 1; Catawba, 10; Chatham, 1; Chowan, 1; Craven, 2; Davidson, 8; Duplin, 2; Edgecombe, 1; Forsyth, 21; Franklin, 20; Gaston, 3; Greene, 25; Guilford, 8; Johnston, 6; Jones, 3; Lenoir, 1; McDowell, 9; Mecklenburg, 20; Nash, about 40; Onslow, 1; Pitt, 20; Randolph, 1; Robeson, 6; Rutherford, 9; Surry, 4; Union, 10; Wilson, 84; Yadkin, 1—31 counties.

MEASLES.—Alexander, 4; Cabarrus, epidemic; Carteret, epidemic; Duplin, 10; Durham, a few; Gaston, 3; Mecklenburg; New Hanover, 2; Pamlico, 53; Randolph, a good many; Rowan, large number; Sampson, few; Union, epidemic; Wilkes, several—14 counties.

WHOOPING-COUGH.—Alleghany, 3; Bertie, 6; Caldwell, 28; Cleveland, few; Duplin, 10; Durham, a few; Forsyth, a few; Graham, several; Granville, 4; Harnett, 4; Haywood, a few; Hertford, 30; Mecklenburg; Mitchell, many; Robeson, 15; Rutherford, 11; Union, a few; Warren, few; Wilkes, few; Yancey, 3—20 counties.

SCARLATINA.—Alamance, 6; Alexander, 8; Burke, 1; Caldwell, 10; Cherokee, 2; Craven, 3; Durham, 2 or 3; Forsyth, 2; Gaston, 15; Granville, 4; Greene, 2; Harnett, 5; Henderson, 2; Johnston, few; Lenoir, 5; Macon; Martin, 1; Mecklenburg; Nash, 12; New Hanover, 4; Pitt, 1; Vance, 1; Watauga, 2; Wilkes, few; Yadkin, 3—25 counties.

Diphtheria.—Alamance, 1; Alexander, 2; Alleghany, 1; Ashe, 7; Brunswick, 1; Buncombe, 3; Caldwell, 5; Carteret, 1; Chatham, 5; Cherokee, 12; Craven, 2; Davidson, 4; Duplin, 12; Durham, 2 or 3; Edgecombe, 6; Forsyth, 4; Franklin, 3; Gaston, 1; Gates, 3; Granville, 10; Guilford, 3; Harnett, 4; Haywood, 3; Henderson, 1; Hyde, 1; Jackson, 1; Johnston, 1; Lenoir, 5; McDowell, 2; Macon, 2; Martin, 1; Mecklenburg; Nash, 1; New Hanover, 3; Onslow, 2; Rutherford, 2; Sampson, 3; Tyrrell, 1; Union, 2; Wilkes, 1; Yadkin, 2; Yancey, 2—42 counties.

Typhoid Fever.—Alamance, 2; Alexander, 6; Beaufort, 3 or 4; Bertie, 4; Bladen, 1; Caldwell, 3; Catawba, 1; Chatham, 2; Cherokee, 4; Duplin, 7; Gaston, 2; Gates, 1; Granville, 2; Guilford, 2; Harnett, few; Haywood, 1; Henderson, 1; Hertford, 2; Jackson, 2; Johnston, 1; McDowell, 4; Martin, 2; Mecklenburg; Montgomery, 2; New Hanover, 4; Pamlico, 4; Randolph, few; Robeson, 20; Scotland, 5; Surry, 2; Union, 4; Wilkes, 2—32 counties.

Malarial Fever.—Hyde, several; Martin, 2—2 counties.

Malarial Fever, Pernicious.—Gates, 2.

Pneumonia.—Alexander, 10; Alleghany, 3; Beaufort, 2; Bertie, 4; Brunswick, several; Cabarrus, many; Caldwell, 15; Camden, 11; Carteret, few; Catawba, 4; Chatham, 10; Chowan, few; Cleveland, many; Craven, several; Davidson, 8; Duplin, 12; Durham, several; Forsyth, several; Franklin, many; Gaston, several; Gates, 5; Graham, 2; Greene, 12; Guilford; Harnett, several; Haywood, 8; Henderson, 2; Hyde, 1; Jackson, 10; Johnston, few; Jones, 2; Lenoir, 8; Lincoln, 4; McDowell, 5; Martin, 2; Mecklenburg; Mitchell, many; Montgomery, 8; New Hanover, 2; Onslow, 2; Pamlico, 5; Pitt, 2; Randolph, several; Robeson, 40; Rowan, 10; Rutherford, 2; Sampson, few; Scotland, 3; Tyrrell, 1; Union, few; Watauga, 4; Wilkes, several; Yancey, 2—53 counties.

Cerebro-spinal Meningitis.—Durham, 1; Gates, 1; Martin, 1; Mecklenburg—4 counties.

Influenza.—Brunswick; Currituck; Hertford; Macon; Montgomery, 21; New Hanover—6 counties.

Cholera, in Hogs.—Brunswick.

No reports received from Anson, Caswell, Clay, Columbus, Cumberland, Dare, Davie, Halifax, Madison, Moore, Orange, Pasquotank, Pender, Perquimans, Person, Richmond, Rockingham, Stanly, Stokes, Swain, Transylvania, Wake, Wayne.

No diseases reported from Iredell and Polk.

Mortuary Report for December, 1909.

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total Deaths. By Races.	Total Deaths. By Towns.	Deaths under five years.	Still-born.
Albemarle	W.	------	2,000	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			--	--
Asheville	W.	15,000	22,000	18.4	15.8	--	--	--	2	--	--	1	5	1	4	--	--	10	--	--	--	23	29	2	1
	C.	7,000		10.2		--	--	--	--	--	--	1	--	1	4	--	--	--	--	--	--	6		3	1
Beaufort	W.	------	2,195	------	10.9	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	1	2	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	1		--	--
Bessemer City	W.	------	1,500	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Burlington	W.	------	6,000	36.0	------	1	--	--	--	--	--	1	1	1	3	--	--	6	--	--	--	13	18	7	2
	C.	------		0.0		--	--	--	--	--	--	--	2	--	--	--	--	3	--	--	--	5		2	--
Chapel Hill	W.	1,000	1,500	0.0	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	500		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Charlotte	W.	------	45,000	------	8.8	--	--	--	--	--	1	5	2	3	1	--	1	4	1	--	--	18	33	9	3
	C.	------		------		--	--	2	--	--	1	3	3	--	--	--	1	5	--	--	--	15		4	4
Cherryville	W.	2,198	2,204	5.4	5.4	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1	1	1	--
	C.	6		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Concord	W.	10,000	12,000	16.8	17.0	--	--	--	--	--	1	--	2	2	1	--	2	6	--	--	--	14	17	4	--
	C.	2,000		18.0		--	--	--	--	--	--	1	2	--	--	--	--	--	--	--	--	3		--	--
Dunn	W.	------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Durham	W.	------	22,500	------	1.2	--	--	--	--	--	--	2	2	--	4	--	--	4	--	--	--	12	23	2	1
	C.	------		------		--	--	--	--	--	--	1	3	2	--	--	--	5	--	--	--	11		1	3
Edenton	W.	------	4,500	------	2.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	1		--	--
Elizabeth City	W.	6,000	10,000	12.0	16.8	--	--	--	2	--	--	1	1	--	--	--	--	2	--	--	--	6	14	3	--
	C.	4,000		24.0		--	--	--	--	1	--	1	--	1	--	--	--	5	--	--	--	8		5	1
Fayetteville	W.	6,000	10,000	10.0	18.0	--	--	--	--	--	--	2	--	--	1	--	--	2	--	--	--	5	15	1	--
	C.	4,000		30.0		--	--	--	--	--	--	2	2	1	2	--	--	3	--	--	10	17		3	--
Forest City	W.	------	1,090	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Gastonia	W.	------	4,610	------	31.2	--	--	--	--	--	--	1	1	1	--	--	--	2	3	--	--	8	12	3	1
	C.	------		------		--	--	--	--	--	--	2	1	--	--	--	--	1	--	--	--	4		2	--
Goldsboro	W.	------	------	------	------	1	--	--	--	--	--	1	--	1	--	--	1	4	--	--	--	8	14	1	--
	C.	------		------		--	--	--	--	--	--	1	1	1	--	--	1	2	--	--	--	6		--	--
Graham	W.	2,450	2,900	4.8	4.1	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	1	--	1
	C.	450		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Greensboro	W.	16,000	20,000	9.7	17.4	--	--	--	--	--	--	2	2	2	2	1	--	4	--	--	--	13	29	--	2
	C.	4,000		48.0		--	--	--	--	--	--	1	6	1	1	1	3	3	--	--	--	16		--	4
Greenville	W.	------	5,000	------	7.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	--	1
	C.	------		------		--	--	--	--	--	--	--	1	2	--	--	--	--	--	--	--	3		--	--
Henderson	W.	------	3,746	------	38.4	1	--	--	--	--	1	--	--	1	2	--	--	1	--	--	--	6	12	1	--
	C.	------		------		--	--	--	--	--	--	--	1	1	--	--	--	4	--	--	--	6		3	--
Hendersonville	W.	------	1,917	------	31.3	--	--	--	--	--	--	--	1	1	--	--	--	1	--	--	--	3	5	--	--
	C.	------		------		--	--	--	--	--	--	--	1	1	--	--	--	--	--	--	--	2		--	--
Hertford	W.	------	2,000	------	18.0	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	2	3	--	--
	C.	------		------		--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1		--	--
Hickory	W.	4,000	5,000	3.0	7.2	--	--	--	--	--	--	--	1	--	1	--	--	--	1	--	--	3	3	--	--
	C.	1,000		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
High Point	W.	9,000	12,000	6.6	8.0	--	--	--	--	--	--	2	2	--	--	--	--	1	--	--	--	5	8	1	1
	C.	3,000		12.0		--	--	--	--	--	--	--	1	--	--	--	--	2	--	--	--	3		3	--
Kings Mountain	W.	------	4,000	------	9.0	--	--	--	--	--	--	--	--	--	1	--	--	--	1	--	--	2	3	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total Deaths. By Races.	Total Deaths. By Towns.	Deaths under five years.	Still-born.
Kinston	W.	------	4,106	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			--	--
Laurinburg	W.	------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			--	--
Lenoir	W.	------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			--	--
Lexington	W.	5,000	6,000	7.2	6.0	--	--	--	--	--	--	2	--	--	--	--	--	1	--	--	--	3	3	1	--
	C.	1,000		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Louisburg	W.	------	1,178	------	1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	1	--	--
	C.	------		------		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1		--	--
McAdensville	W.	------	1,144	------	20.9	--	--	--	--	1	--	1	--	--	--	--	--	--	--	--	--	2	2	--	2
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Marion	W.	------	1,500	------	8.0	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1	1	--	1
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Monroe	W.	------	5,000	------	19.2	--	--	--	--	--	--	2	1	--	--	--	1	--	--	--	--	4	8	--	--
	C.	------		------		--	--	--	--	--	1	--	--	--	--	--	2	1	--	--	--	4		1	--
Mooresville	W.	------	3,500	------	3.4	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	1	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Morganton	W.	------	3,000	------	24.0	--	--	--	--	--	--	1	--	1	--	--	--	2	--	--	--	4	6	1	--
	C.	------		------		--	--	--	--	--	--	--	1	1	--	--	--	--	--	--	--	2		--	--
Morehead City	W.	------	1,379	------	26.1	--	--	--	--	--	1	--	--	1	--	--	--	1	--	--	--	3	3	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Mount Airy	W.	------	5,100	------	18.8	--	--	--	--	--	--	--	--	2	--	--	--	3	--	--	--	5	8	--	--
	C.	------		------		--	--	--	--	--	--	--	--	1	1	--	1	--	--	--	--	3		1	--
New Bern	W.	7,500	15,000	17.6	26.4	--	1	--	--	--	--	2	2	3	1	--	1	1	--	--	--	11	33	2	--
	C.	7,500		35.2		--	--	--	--	--	--	3	4	3	4	1	2	4	1	--	--	22		6	2
Newton	W.	3,000	3,250	16.0	14.7	--	--	--	--	--	--	--	--	--	--	--	--	4	--	--	--	4	4	1	1
	C.	250		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Oxford	W.	2,200	4,000	5.4	3.0	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1	1	--	--
	C.	1,800		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Plymouth	W.	------	1,011	0.0	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	------		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Raleigh	W.	14,000	25,000	18.0	21.1	--	--	--	--	--	--	4	1	5	--	--	--	11	--	--	--	21	44	3	--
	C.	11,000		25.09		--	--	1	--	--	--	4	3	2	1	--	1	10	1	--	--	23		3	2
Randleman	W.	------	2,800	------	4.2	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1	1	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Reidsville	W.	3,034	5,188	3.9	2.3	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	1	--	--
	C.	2,154		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Roanoke Rapids	W.	2,000	2,025	6.0	5.9	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	1	--	--
	C.	25		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Rockingham	W.	------	1,507	------	23.8	--	--	--	--	--	--	1	1	1	--	--	--	--	--	--	--	3	3	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Rocky Mount	W.	6,000	9,000	18.0	17.3	--	--	--	--	--	--	3	--	2	1	--	1	1	1	--	--	9	13	1	3
	C.	3,000		16.0		--	--	--	1	--	--	--	--	--	--	--	1	1	1	--	--	4		2	--
Roxboro	W.	------	2,500	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			--	--
Salem	W.	3,000	3,400	16.0	31.8	--	--	--	--	--	--	1	1	--	1	--	--	1	--	--	--	4	9	1	--
	C.	400		150.0		--	--	--	--	--	--	2	--	--	1	--	--	2	--	--	--	5		--	--
Salisbury	W.	12,000	16,000	17.0	18.7	--	--	--	--	--	--	1	3	2	2	--	1	4	4	--	--	17	25	2	2
	C.	4,000		24.0		--	--	--	--	--	--	1	1	--	2	--	--	4	--	--	--	8		2	--
Sanford	W.	------	4,000	------	6.0	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1	2	1	--
	C.	------		------		--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1		--	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Fever.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total Deaths. By Races.	Total Deaths. By Towns.	Deaths under five years.	Still-born.
Scotland Neck	W.	------	1,800	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	--
Shelby	W.	------	4,000	------	3.0	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	1	1	--	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Southport	W.	1,000	1,600	24.0	15.0	1	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	2	2	--	--
	C.	600		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Statesville	W.	------	5,000	------	12.0	--	--	--	1	--	--	--	--	1	--	--	--	1	--	--	--	3	5	1	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	2		1	--
Tarboro	W.	2,800	3,600	12.8	10.0	--	--	--	--	--	--	--	2	1	--	--	--	--	--	--	--	3	3	--	--
	C.	800		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Wadesboro	W.	2,200	3,500	21.8	20.5	--	--	--	--	--	--	--	2	--	--	--	--	2	--	--	--	4	6	1	--
	C.	1,300		18.4		--	--	--	--	--	--	1	--	--	--	--	--	1	--	--	--	2		2	--
Washington	W.	------	10,000	------	14.4	--	--	--	--	--	--	1	--	1	--	1	--	3	--	--	--	6	12	--	1
	C.	------		------		--	--	2	--	--	--	--	1	--	--	--	--	3	--	--	--	6		1	1
Waynesville	W.	------	3,500	------	10.2	--	--	--	--	--	--	--	--	1	1	--	--	1	--	--	--	3	3	2	--
	C.	------		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0		--	--
Weldon	W.	1,300	2,500	9.2	9.6	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1	2	1	--
	C.	1,200		10.0		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	1		--	--
Wilmington	W.	------	35,000	------	15.4	--	--	--	--	--	--	--	3	1	3	--	--	14	--	--	--	21	45	2	3
	C.	------		------		--	--	--	--	--	--	1	4	1	5	1	1	10	--	1	--	24		11	7
Wilson	W.	5,000	8,500	14.4	19.7	--	--	--	1	--	--	--	--	--	2	--	--	3	--	--	--	6	14	2	--
	C.	3,500		27.4		--	--	--	--	--	--	--	1	2	--	--	--	5	--	--	--	8		2	--
Winston	W.	14,000	22,000	12.8	17.4	--	--	--	--	--	--	2	2	1	3	--	--	6	1	--	--	15	32	6	--
	C.	8,000		25.5		--	--	--	--	--	--	1	5	--	1	--	--	8	2	--	--	17		2	2

Population of the above towns estimated.

SUMMARY OF MORTUARY REPORT FOR DECEMBER, 1909.

	White.	*Colored.*	*Total.*
Aggregate population	155,682	72,485	416,256
Aggregate deaths	306	234	540
Temporary annual death rate per 1,000,	23.5	38.7	10.7
Cause of Death.			
Typhoid fever	4	0	4
Scarlet fever	1	0	1
Malarial fever	1	5	6
Diphtheria	6	1	7
Whooping-cough	1	1	2
Measles	4	2	6
Pneumonia	42	28	70
Consumption	38	45	83
Brain disease	39	21	60
Heart disease	37	22	59
Neurotic diseases	2	4	6
Diarrhœal diseases	8	14	22
All other diseases	111	86	197
Accident	12	5	17
Suicide	....	....	....
Violence	....	....	....
Total (excluding still-born, but including deaths under five years old)	306	234	540
Of this total the number of deaths under five years old was	65	59	124
Still-born	26	27	53

County Superintendents of Health.

Alamance	Dr. J. W. Long	Burlington.
Alexander	Dr. O. L. Hollar	Taylorsville.
Alleghany	Dr. B. O. Choat	Sparta.
Anson	Dr. E. S. Ashe	Wadesboro.
Ashe	Dr. J. C. Testerman	Jefferson.
Beaufort	Dr. P. A. Nicholson	Washington.
Bertie	Dr. J. L. Pritchard	Windsor.
Bladen	Dr. L. B. Evans	Clarkton.
Brunswick	Dr. J. A. Dosher	Southport.
Buncombe	Dr. D. E. Sevier	Asheville.
Burke	Dr. J. R. Anderson	Morganton.
Cabarrus	Dr. J. W. Wallace	Concord.
Caldwell	Dr. C. L. Wilson	Lenoir.
Camden	Dr. C. G. Ferebee	Gregory.
Carteret	Dr. W. E. Headen	Morehead City.
Caswell	Dr. S. A. Malloy	Yanceyville.
Catawba	Dr. T. C. Blackburn	Hickory.
Chatham	Dr. L. E. Farthing	Pittsboro.
Cherokee	Dr. J. F. Abernethy	Murphy.
Chowan	Dr. H. M. S. Cason	Edenton.
Clay	Dr. J. M. Sullivan	Hayesville.
Cleveland	Dr. T. E. McBrayer	Shelby.
Columbus	Dr. H. B. Maxwell	Whiteville.
Craven	Dr. J. F. Rhem	New Bern.
Cumberland	Dr. W. S. Jordan	Fayetteville.
Currituck	Dr. H. M. Shaw	Shawboro.
Dare		
Davidson	Dr. E. J. Buchanan	Lexington.
Davie	Dr. M. D. Kimbrough	Mocksville.
Duplin	Dr. J. A. Ferrell	Kenansville.
Durham	Dr. N. M. Johnson	Durham.
Edgecombe	Dr. S. P. Bass	Tarboro.
Forsyth	Dr. J. K. Pepper	Winston.
Franklin	Dr. R. F. Yarborough	Louisburg.
Gaston	Dr. L. N. Glenn	Gastonia.
Gates	Dr. G. D. Williams	Gatesville.
Graham	Dr. M. T. Maxwell	Robbinsville.
Granville	Dr. S. D. Booth	Oxford.
Greene	Dr. W. B. Murphy	Snow Hill.
Guilford	Dr. Edmund Harrison	Greensboro.
Halifax	Dr. I. E. Green	Weldon.
Harnett	Dr. L. F. Abernethy	Lillington.
Haywood	Dr. J. R. McCracken	Waynesville.
Henderson	Dr. J. G. Waldrop	Hendersonville.
Hertford	Dr. J. H. Mitchell	Ahoskie.
Hyde	Dr. R. E. Windley	Lake Landing.
Iredell	Dr. M. R. Adams	Statesville.
Jackson	Dr. A. S. Nichols	Sylva.
Johnston	Dr. A. H. Rose	Smithfield.
Jones	Dr. A. F. Hammond	Pollocksville.
Lee	Dr. J. P. Monroe	Sanford.
Lenoir	Dr. N. A. Whitaker	Kinston.
Lincoln	Dr. J. W. Saine	Lincolnton.
McDowell	Dr. Guy S. Kirby	Marion.

Macon	Dr. S. H. Lyle	Franklin.
Madison	Dr. W. J. Weaver	Marshall.
Martin	Dr. W. E. Warren	Williamston.
Mecklenburg	Dr. C. S. McLaughlin	Charlotte.
Mitchell	Dr. V. R. Butt	Bakersville.
Montgomery	Dr. C. Daligny	Troy.
Moore	Dr. Gilbert McLeod	Carthage.
Nash	Dr. J. P. Battle	Nashville.
New Hanover	Dr. W. D. McMillan	Wilmington.
Northampton	Dr. H. W. Lewis	Jackson.
Onslow	Dr. Cyrus Thompson	Jacksonville.
Pamlico	Dr. D. A. Dees	Bayboro.
Pasquotank	Dr. H. T. Aydlett	Elizabeth City.
Pender	Dr. R. H. Bradford	Burgaw.
Perquimans	Dr. T. P. McMullen	Hertford.
Person	Dr. W. T. Long	Roxboro.
Pitt	Dr. W. M. Fountain	Greenville.
Polk	Dr. W. R. Engel	Tryon.
Randolph	Dr. N. C. Hunter	Rockingham.
Robeson	Dr. W. A. McPhail	Lumberton.
Rockingham	Dr. Sam Ellington	Wentworth.
Rowan	Dr. M. L. Smoot	Spencer.
Rutherford	Dr. E. B. Harris	Rutherfordton.
Sampson	Dr. A. M. Cooper	Clinton.
Scotland	Dr. K. A. Blue	Laurinburg.
Stanly	Dr. J. N. Anderson	Albemarle.
Stokes	Dr. J. W. Neal	Walnut Cove.
Surry	Dr. J. R. Woltz	Dobson.
Swain	Dr. A. M. Bennett	Bryson City.
Transylvania	Dr. Goode Cheatham	Brevard.
Tyrrell	Dr. J. L. Spruill	Columbia.
Union	Dr. H. D. Stuart	Monroe.
Vance	Dr. E. F. Fenner	Henderson.
Wake	Dr. J. J. L. McCullers	McCullers.
Warren	Dr. M. P. Perry	Macon.
Washington	Dr. W. H. Ward	Plymouth.
Watauga	Dr. J. M. Hodges	Boone.
Wayne	Dr. T. M. Bizzell	Goldsboro.
Wilkes	Dr. E. M. Hutchens	North Wilkesboro.
Wilson	Dr. W. S. Anderson	Wilson.
Yadkin	Dr. T. R. Harding	Yadkinville.
Yancey	Dr. W. B. Robertson	Burnsville.

Dr I H Manning

THIS BULLETIN WILL BE SENT FREE TO ANY CITIZEN OF THE STATE UPON REQUEST

BULLETIN

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HEALTH.

For educated men, what are the sources of the solid and durable satisfactions of life? That is what I hope you are all aiming at—the solid, durable satisfactions of life; not primarily the gratifications of this moment or to-morrow, but the satisfactions that are going to last and grow. So far as I have seen, there is one indispensable foundation for the satisfactions of life—health. A young man ought to be a clean, wholesome, vigorous animal. That is the foundation for everything else, and I hope you will all be that, if you are nothing more. We have to build everything in this world of domestic joy and professional success, everything of a useful, honorable career, on bodily wholesomeness and vitality.—Ex-President Eliot of Harvard.

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*Deceased.

RESPONSIBILITY FOR PREVALENCE OF SMALLPOX.

Pursuant to the plan of publicity for fixing the responsibility for the spread of contagious disease, published in the January Bulletin, and in compliance with section 4437 of the Revisal of 1905, which makes it a duty of the State Board of Health to gather information bearing on the cause and spread of epidemics "for distribution among the people," the following report is respectfully submitted to those concerned—the public.

This report is based upon the tabulated independent opinions of twenty-six health officers whose names are herewith subjoined.

Dr. Geo. W. Long.....County Supt. of Health of Alamance.
Dr. P. A. Nicholson.....County Supt. of Health of Beaufort.
Dr. L. B. Evans.....County Supt. of Health of Bladen.
Dr. T. C. Blackburn.....County Supt. of Health of Catawba.
Dr. L. E. Farthing.....County Supt. of Health of Chatham.
Dr. H. M. S. Cason.....County Supt. of Health of Chowan.
Dr. J. E. Buchanan.....County Supt. of Health of Davidson.
Dr. J. A. Ferrell.....County Supt. of Health of Duplin.
Dr. S. P. Bass.....County Supt. of Health of Edgecombe.
Dr. R. F. Yarborough.....County Supt. of Health of Franklin.
Dr. L. N. Glenn.....County Supt. of Health of Gaston.
Dr. Edmond Harrison.....County Supt. of Health of Guilford.
Dr. A. H. Rose.....County Supt. of Health of Johnston.
Dr. J. W. Saine.....County Supt. of Health of Lincoln.
Dr. Guy S. Kirby .....County Supt. of Health of McDowell.
Dr. J. P. Battle.....County Supt. of Health of Nash.
Dr. Daniel A. Dees.....County Supt. of Health of Pamlico.
Dr. Wm. Fountain.....County Supt. of Health of Pitt.
Dr. Sam Ellington.....County Supt. of Health of Rockingham.
Dr. J. W. Neal.....County Supt. of Health of Stokes.
Dr. J. R. Woltz.....County Supt. of Health of Surry.
Dr. H. D. Stewart.....County Supt. of Health of Union.
Dr. T. R. Harding.....County Supt. of Health of Yadkin.
Dr. L. A. Walker.....Municipal Health Officer of Burlington.
Dr. J. E. Dowdy.....Municipal Health Officer of Winston.
Dr. T. M. Jordan.....Municipal Health Officer of Raleigh.

To these health officials the following list of questions were sent:

1. Date of beginning of recent outbreak of smallpox in your county.
2. Date of greatest prevalence.
3. Approximate number of cases at date of greatest prevalence.
4. Present number of cases.
5. Total number of cases.
6. How many deaths have resulted from the disease?
7. Have all cases originated from one focus of infection, or have other independent foci of infection occurred?
8. If there have been other independent foci, in what part of the county did they originate?
9. In what part of the county did the disease start?
10. State your opinion of the origin of the various foci in your county.
11. Approximately, what has the disease cost your county?

The answers to these questions show that within the combined jurisdictions of these twenty-six health officers *seventy-two* independent foci of infection with smallpox occurred between October 1, 1909, and February 15, 1910. By independent focus of infection, as here used, we mean all cases contracted from an individual primary case, which came from the jurisdiction of another health official, or from outside of the county or town in which it develops. From the 72 foci of infection 915 cases of the disease developed. By dividing the total number of cases, 915, by the total number of foci, 72, from which they developed, we find that the average focus of infection resulted in 12 5-7 new cases. From the reports of 19 of the above health officials, in which the questions relating to total number of cases and cost to the county are fully answered, we find that 801 cases cost $9,775, which would make each case cost $12. Now, having found that each focus of infection results in 12 5-7 new cases, and having found the cost per case, by multiplying 12 5-7 x 12 we find that each focus of infection cost the county in which it occurred approximately $150.

Having ascertained the cost per focus, we may by knowing the number of foci charged to any particular health official's jurisdiction estimate the cost of such jurisdiction to other parts of the State by simply multiplying $150 by the number of foci charged to that jurisdiction. Based on the reports of twenty-six health officers is the

following table showing the responsibility for the loss of over $10,000 to the State, not to mention losses from trade interference, doctors' and druggists' bills, time from sickness, suffering, and death.

Town or County.	Responsible for Foci.	Costing Other Parts of State.
Wilson	17	$ 2,550
Forsyth	16	2,400
Wake	4	600
Johnston	3	450
Rutherford	3	450
Cabarrus	2	300
Catawba	2	300
Caldwell	1	150
Franklin	1	150
Nash	1	150
Robeson	1	150
Rockingham	1	150
Stokes	1	150
High Point	3	450
Charlotte	3	450
Burlington	1	150
New Bern	1	150
Georgia	4	*600
Virginia	2	*300
South Carolina	2	*300
Maryland	1	*150
Tennessee	1	*150

*Costing North Carolina.

Undetermined foci are numerous, and impossible to definitely state either number or origin.

Another instructive fact revealed by these reports is the difference in the cost of handling smallpox outbreaks early and late. See table.

72 foci, resulting in from 1 to 100 cases, cost county per focus	$ 150
16 foci, none of which resulted in *more* than 10 cases, cost county per focus	84
15 foci, none of which resulted in less than 50 cases, cost county per focus	340

It is therefore perfectly apparent that it is much more economical for the town or county to handle the disease in its early stages than later; that in addition to this saving, early control prevents losses from industrial interference, prevents much unnecessary sickness, possibly death, and prevents the county becoming an expense to the rest of the State. Efficient county health work is not only the cheapest and best thing for the county, but a public service and a blessing to the entire State.

Without reflecting in any way on other health officials, the editor wishes to call attention to two exceptional examples of efficient public health service.

In Gaston County during the last five months six independent foci of infection have occurred. Each focus can be clearly separated from the others by both time and space. The county superintendent of health, Dr. L. N. Glenn, has definitely traced each outbreak to its origin. From these six different invasions of Gaston by smallpox not a single case has been allowed to develop. Every case occurring in that county has been carried in from the outside. This is as perfect a piece of preventive work as will be found. It cost this county for this absolute protection of its health, life, trade, and reputation for efficient county government between $400 and $500, a small sum, when compared with counties reporting from 50 to 190 cases and from $500 to $2,000 cost to themselves, not to mention their cost to neighboring counties.

Another instance of efficient health work is furnished by Dr. Edmond Harrison, county superintendent of health of Guilford. The proximity of Guilford to Forsyth, a county to which a jury of twenty-five health officers charge 16 foci of infection, and the concentrated population of a city like Greensboro make the danger to that county especially menacing. In Guilford there were, all told, 9 foci of infection, 6 occurring in the county, outside of the city, and directly traceable to Winston; 3 occurring in the city of Greensboro and of undetermined origin. The nine foci developed only 33 cases, a fraction more than 3 cases per focus. What is especially noteworthy is that 3 of the 9 foci occurred within the city of Greensboro and resulted in only one additional case. These three intra-urban foci make a pretty demonstration of the preventability of

smallpox, even in large cities. The total cost to Guilford for this protection of its health, life, business, and its neighbors amounts to about $300.

Still another example of efficient health work is seen in the way in which the city of Raleigh has handled its smallpox. With seven foci of infection only ten cases of the disease has resulted.

The county superintendents of health of Chatham and Lincoln counties each reports only one case in their county, and that both counties have spent $150 each to control the disease. This simply means that these health officials took immediate and vigorous action in the very beginning, and probably explains the fact that no secondary case developed. A demonstration of the wisdom of the stitch in time.

In conclusion, a word of thanks is due twenty-six out of twenty-eight health officials who responded to the request of the State Health Officer in furnishing the data on which this report is based. Request for this information was made only of those health officials where the disease was especially prevalent, or where some citizen had complained to the State Board of Health for protection, or where there was some other special reason for this request. Many of these reports show careful work on the part of the health officer reporting. For example, a number of the twenty-six officials give the origin of each focus of infection occurring in their territory—a fact that can be ascertained nine times out of ten if the health official is really seriously interested in protecting his public trust from the invasion of the focus of disease and death. For a health officer not to keep in close touch with those responsible for the dissemination of disease within his jurisdiction is to seriously cripple the power of the State to protect his constituency.

THE CALL TO PUBLIC HEALTH.

William T. Sedgwick, *Massachusetts Institute of Technology.*
Annual Address in Medicine, Yale University.

One of the most fruitful sequels of the scientific age has been the new and higher valuation which it places upon ordinary human life.

As long as this present every-day world and this ordinary human

life were held, whether by ancients or by medievals, to be merely the prelude to another and a better, any serious struggle for longevity, any earnest plea for health for health's sake, fell upon deaf ears. As long as a sick man or his friends could honestly exclaim in the face of sickness or death, "I know that if my earthly house of this tabernacle be dissolved I have an house not made with hands, eternal, in the heavens," disease and death lost their terrors, and even became almost attractive.

Ideals of this kind, full of hope and rich in encouragement for weary mortals, ought never, and need never, to have been divorced from perfect joy and satisfaction in this present life. It was the refusal to consent to any such separation that brought on the warm springtime of the Renaissance after the winter of the Middle Ages. And it must be reckoned the colossal blunder of theology and ecclesiasticism that in their reaction to the Renaissance they blindly turned their backs upon this world and fixed their gaze upon a distant and an unknown world, of which they dreamed much, but knew little. It was well that theology should urge man on to the ultimate and the ideal, but it need not, in doing this, have neglected the nearby and the real. Is it any wonder that under such guidance mankind, while running regardless through the mazes of this world, its eyes glued to the heavens, should have stumbled and fallen over the commonest obstacles; or that some, bruised in falling, should have turned to rend those who had misled him?

The philosopher of the future will surely count as pathological those periods of history in which ordinary life, for whatever reason, was cheaply held; whether by the morbid ambition of kings and generals, or the morbid mentality of theologians and ecclesiastics. Then will it become the glory of the medical profession that nearer than either warriors or churchmen to the sublime teachings of Jesus of Nazareth have been, all through the ages, the theory and practise of physicians, who have always held the life to be more than meat, the body than raiment; who have emphasized that portion of the liturgy which prays, "as well for the body as the soul"; and who have believed that Christ meant what he said when he asserted that he came that mankind might have life, and might have it more abundantly.

The call to life, and to life in this world, is thus the first and fundamental call of the scientific age. And the next is the call to health, *i. e.*, to wholeness or fullness of normal life. It is not merely that we may have life, but that we may have it more abundantly. The first and chief characteristic of science is that it seeks always after nature, after the normal, *i. e.*, the natural, and looks askance upon the abnormal and the super- or the sub-natural. Hence the call of a scientific age for normal, natural life and healthy living;

hence its disapproval of disease, hence its disgust with dirt as a cause of disease, and its belief in public health as well as private welfare.

The call to health is also the primal call to individual duty, for the call to life rests not upon us, but upon our forbears. Endowed by our ancestors with living bodies full of a machinery more wonderful and intricate than the works of any other known mechanism, we ought first to realize our responsibility for the care and operation of this precious apparatus. And here again we have to deplore that blind, if not insane, leadership which for so many weary centuries led mankind, not only to an ignorant contempt for the flesh, but to ingenious and hideous forms of mortification of the body, such as fastings, flagellations and various grotesque forms of worship or penance. Happily, we have now a more reasonable regard for the human mechanism, a more general recognition that it is worthy of respect and care. And yet, even to-day our children are taught but little in their schools and less in their colleges about the human body and its proper care and conservation. Physiology, hygiene and sanitation, as elements in the curriculum, are despised by many principals and superintendents of elementary and secondary schools; and, being only rarely subjects required for admission to the higher schools and universities, education is sacrificed to examination, and physiology is pushed aside in the struggle for examination records that will count. The call for public health to be effective must begin not with a clamor for a secretary of public health in the cabinet at Washington, but with a general insistence upon sound and accurate teaching in the public schools of the essentials of physiology and hygiene and the basic principles of sanitation. Out of such teaching would soon grow an interest in the public health, a call for efficient service, and an expenditure for sanitation, which, rightly directed, would become irresistible and lead up logically to federal supervision and assistance.

But the call to public health is not merely a call to individual welfare; it is also one of the primal social duties. Next after himself, man owes it to his neighbor to be well, and to avoid disease in order that he may impose no burden upon that neighbor. A normal community can only be made up of normal members, and we are but just beginning adequately to recognize that the tuberculous person or the typhoid patient is a menace to the public health. The Germans have given us that excellent phrase *Bacillenträger;* and this, for one disease, we have recently translated as typhoid carriers. It would be well if we went further, and, instead of speaking as we usually do, merely of "consumptives," if we referred sometimes to these as tuberculosis carriers. If we could go further yet and refer to syphilis carriers and other sex-disease carriers, we should do useful service by educating the public to one of the gravest social aspects of public-health reform.

The call of the scientific age to public health is nothing less than a summons to mankind to carefully consider and wisely control the whole physical sphere of human life and activity. And this great sphere falls naturally into two hemispheres: namely, that of the human organism on the one hand, and that of the environment of that organism on the other. The general public perceives most easily the environment and its significance to health. Plague and pestilence proceeding from without have long been known and dreaded. The cold of winter, the heat of summer, the lightning stroke, a scarcity of food or drink—all these have long since taught man his dependence on his nearer surroundings. Sunshine and rainfall, dew and frost, seem more remote and mysterious; while planets and fixed stars, the moon and the milky way, have influences so uncertain as to connect them with the unknown and the supernatural—inexplicable human qualities, such as insanity, being easily regarded as moon madness or "lunacy." Of any appreciation of the physical give and take, the chemical and electrical action and reaction, between man and his environment, our predecessors had little or no idea. The story of Newton and the apple still seems to most unscientific minds absurd and impossible. Even to-day it is not in any broad and accurate form that the public conceives of the environmental aspect of public health problems. The idea has gone forth that water should be pure, but most persons still suppose that whatever water flows from city pipes is safe to drink—especially if it is bright and cool. Others, more intelligent, refuse all city water in places known to have impure supplies; yet thoughtlessly drink that very water on cars or steamers departing from such a city, where these have taken on supplies of the impure water. That milk, most ancient and most trusted of all human foods, may carry sickness and death concealed beneath its white and innocent-looking mantle, is an idea which spreads but slowly. That contagion may come, not merely on the wings of the wind, but in a cup of cold water or of milk, in the caress of affection, on the hand of pity stretched out to save, upon the penitential garment, or even upon the sacramental communion cup or the broken bread—these ideas, dimly dreamed of in the past, are among the very corner stones of sanitary knowledge to-day.

Turning to the other hemisphere of human concern, the organism itself, we enter that province which the medical profession has long made peculiarly its own. The medieval philosophers recognized dimly the true relations of organism and environment, but they fell into the picturesque error of regarding the human body as a kind of miniature copy of the remainder of the universe, and especially of the heavens. Hence they spoke of man as the microcosm, standing over against, yet reproducing, as it were, the rest of the universe or the macrocosm. It is the glory of the medical profession that

it has always had scientific curiosity, that it has insisted upon actually dissecting the human body, mapping out laboriously its real anatomy, puzzling out slowly and painfully its true physiology. It has often been mistaken, but it has seldom refused to observe or to reason. Hippocrates is still admired as the father of medicine, not for his theories, which are now merely historical curiosities; nor for his practice, which was doubtless poor enough; but for his method, which was sound and scientific as well as new; for his insistence on observation and study, especially of the patient; but above all, for his conception of disease as a natural rather than a supernatural phenomenon. Sydenham is still called the English Hippocrates, because he, too, looked upon disease as a natural disturbance of a material mechanism. And that this mechanism possesses—must possess, in order to exist at all—some power of resistance to external conditions is obvious. That some human bodies possess more and some less of this power of resistance is perfectly plain. That the same body may, and actually does, vary in its powers of coping with its surroundings, is also a fact of common human experience. That this "vital resistance" or "vitality" can, within narrow limits, be increased or diminished, is also commonly understood, though seldom popularly formulated—for every one knows the refreshment and reinvigoration of rest, of sleep and of food; the depression and danger of overwork, loss of sleep, starvation, debauchery or poisonings. But the idea that we can artificially and at will secure immunity from virulent diseases, from which there was formerly no escape, dates back less than two centuries: namely, to 1717, and to the letters of Lady Mary Wortley Montagu from Constantinople, telling about inoculation against the smallpox as practised there.

Both conceptions—control of environment and control of the bodies of the people—are indispensable to scientific efforts for public health. The terms "environment," "organism," "vital resistance," "immunity" and the like, are easy to pronounce, easy to repeat. But to the biologist each has had a history and each is full of deep significance. He who would really master the philosophy of life and disease and health must first become a biologist, for the great fact which biology teaches, that man has arisen from the lower animals, helps us to comprehend many human habits and proclivities which would otherwise be hard to understand. Anthropology, especially, and archeology, by showing how man probably first hunted, then tamed, and finally domesticated and dwelt with lower animals, helps us to realize, as our ancestors never dreamed, our lowly origin and our filthy habits. If we are careless of excrements, neglectful of parasites, heedless of food and drink, guided by appetites rather than reason, we do not to-day lay all the blame upon an hypothetical Adam for a natural if not praiseworthy curiosity. We look rather to those long ages

of essentially animal behavior, under animal conditions and with animal associations, and marvel not so much at our present carelessness as that we have ever climbed so high. If our dietary of to-day is too rich in protein, and especially in meat, we have perhaps to thank for it those long ages before agriculture had arisen, when meat was the staple food; when the kid or the fatted calf was killed for the guest bidden to meat, as well as for the returning prodigal; when meat and drink went together, and when grace before meat began to be said as it often is to-day—although the "meat" of to-day may be largely cereals, vegetables and fruit.

We need thus to broaden and deepen our knowledge of the human organism and its evolution before we seek to modify it or its behavior towards the environment. And so, too, in our studies of the environment for health's sake, or for preventive medicine, we must begin with the broadest ideas. For we are here dealing with that other and vastly greater hemisphere of human interest, which, taken together with the human organism, makes up nothing less than the whole known universe. We may even define the environment as that part of the universe not ourselves—a conception which, made dynamic by the interaction of the two reciprocal factors, organism and environment, becomes almost sublime. How delicately the human organism is attuned to its environment we realize when we consider that wonderful rhythm which we call our sleep and our awaking, and that other rhythm of hibernating plants and animals which is the response to seasonal rather than nocturnal darkness. The more intimate relations of climatology and public health have yet to be worked out, but no one can doubt their fundamental importance, and Major Woodruff's main contention, in his interesting book on the effects of tropical light on white men, is certainly correct, as any one knows who has ever felt the tropical sun, or even suffered severely in middle life from sunburn.

The increasing call for health which, as I have shown, has its origin in the conviction that life is worth living, especially if it be normal, healthy life, finds strong support on every hand, but especially in the conservation of human energy; in greater humanitarianism; and in economic and moral efficiency. There is a kind of conservation of human matter and energy as truly as there is of physical matter and force. I hold no brief for vitalism; but our physical human energy is subject to laws of dissipation as surely as is that of the sun, and that man who expends his thought and energy upon himself and his ills, dissipates and loses his stock of energy available for other and better purposes. On the other hand, we must not forget that many invalids and persons in poor health have been heavy contributors to the happiness and welfare of the world. As examples, I need only mention the names of Charles Darwin and Robert Louis Stevenson.

The call to health has humanitarian aspects. Is it a light or a small affair to postpone premature death, or to avoid sickness, and thereby postpone or avoid the pain, the sorrow and the weeping of those who would mourn? Is it not a kind of cruelty to allow infected water or milk to carry into happy homes the germs of typhoid or scarlet fever? If a thief in the night should wound and kill, as milk-borne typhoid often does in a family of children, should we not call him cruel? Sickness and deaths from carelessness are not, perhaps, as repugnant or as cruel as those from malice or robbery, but the actual effects upon the family and the social organism are much the same.

As for moral considerations involved in the present-day call to public health, we need only to think of the peevishness or the querulousness of invalidism, which often rises, or falls, into selfishness so gross as to be pathological; of the dyspepsia, with its moral as well as physical torments to patients and their friends; or of those degenerated and perverted human specimens which disease sometimes produces, to show that here, also, we can no longer attribute to devils what often proceeds from disease, and that the call to health and prevention for morals' sake is loud and urgent.

On the economic side, the call for health is barely beginning to be appreciated. Sickness and death mean everywhere heavy financial burdens upon the family and the community, and it is now being realized as never before that Emerson's dictum, "the first wealth is health," is strictly true, not only for the individual, but for the social individual or community. New light is just now being shed, for example, upon the economic value of one public-health measure, viz., a pure water supply, by a verification which one of my students and I have made of a theorem suggested independently, as it seems, by Mr. Mills, the distinguished engineer member of the Massachusetts State Board of Health, and Dr. Reincke, the health officer of Hamburg, Germany, but first publicly formulated and published by the eminent American sanitary engineer, Mr. Allen Hazen. Hazen's theorem asserts that for every death from typhoid fever avoided by the purification of a polluted public water supply, two or three deaths are avoided from other causes. Working under my direction, Mr. Scott MacNutt has recently been able to confirm this surprising theorem, and even to establish it as conservative. We have also gone further than Hazen, and discovered what the other causes are from which deaths are thus avoided; and, although our results are not yet all published, I may say that conspicuous among these "other causes" are pneumonia, pulmonary tuberculosis, bronchitis and infant mortality. Mr. MacNutt and I have also raised the question, To what is this unexpected result due? But this question we have not yet been able to answer. It may be that the germs of other diseases than typhoid fever are more often water-borne than has

hitherto been suspected, so that purification of a polluted water supply causes a cessation of infection; or it may be that polluted water somehow depresses the vital resistance and so permits micro-organisms which might otherwise have been successfully resisted, to gain a fatal foothold; or it may be that both these factors are at work, and that each is partly responsible for the fortunate result. On this problem we are still at work.

The city of Pittsburg is just installing a great municipal filter plant for the purification of its principal water supply, at an expense of upwards of $7,000,000. It is reasonable to estimate that in a year or two this should effect a saving of 100 deaths a year from typhoid fever; for the number of typhoid fever deaths of late years has been 400 or more yearly. Valuing these lives at $5,000 each, as is customary, the saving effected by the purification works should be half a million of dollars worth of human life annually, making the building of the filter a sound and profitable economic as well as a humanitarian measure. But if, as Mr. MacNutt and I have shown, Hazen's theorem is true, then for every 100 deaths saved from typhoid fever, at least 200 will be saved from other causes; which means at least $1,000,000 more saved to the city of Pittsburg annually, of its present waste of human life.

The call to leadership in the public-health service is a call to the educated everywhere, but especially to educated physicians. And I would, if I could, impress upon the young men about to claim that title from this ancient university, that it is their duty as well as their privilege to lead a willing public on to higher achievements of public as well as private health. It has long been the glory of the medical profession that its members were primarily naturalists rather than supernaturalists, as the word "physician" itself testifies, for it means "a naturalist." That other cognomen of the profession, "doctor," points the way to another duty, another high and noble function, namely, that of the "teacher." Physicians and doctors, naturalists and teachers of physic, *i. e.*, of nature—need any one ask for a nobler vocation! But if teachers and students of nature, you must be learners, also, and that not merely of the healing art, but of that other equally important sister art, the art of prevention. The call to public health is a call to preventive as well as to healing medicine; and here, under our definitions, you may to-day join hands with such members of the laity as aid in the promotion of health, the prevention of disease; for example, with the sanitary engineer, the sanitary chemist, the sanitary biologist, the physiologist, the statistical expert, and the expert in physical education—for these, too, are naturalists and hence physicists, *i. e.*, in the strict sense, physicians.

Fortunately, the call of the age to public health comes to us with the new knowledge in pathology. We now know as never before that

in that portion of the universe not ourselves lie many, perhaps most, of the sources of our sickness. The call to health is thus largely a call to beware of our environment, *i. e.*, of the things about us, and here at last we can agree with the monastics. But, again, the unwisdom of a philosophy which bids us turn our eyes heavenward and neglect things close at hand becomes painfully manifest.

Nor is the newer doctrine merely an enlightened selfishness; it is practical altruism, also, for it recognizes the solidarity of mankind and the fact that whoever purifies drinking-water or dirty milk from the germs of disease; whoever promotes temperance or avoids sickness in himself or his household, lifts a burden from other men's shoulders and increases the potential efficiency of some other of those units of which the whole body politic is made up. The call of the age to health is a call to sacrifice and to service, both personal and public; and the call to service has been the deepening undertone of the call to humanism, all along the ages. Sophocles, in his day, urged it upon the Athenians, and Œdipus seizes upon public service for his final passionate appeal to the prophet Teiresias for aid against the plague with which the land was cursed: "For in thee is our hope; and a man's noblest task is to help others, by his best means and powers." Our modern cynics may smile at the inconsistency of an age like our own which is constantly preaching the gospel of service and efficiency, and yet suffers grievously from bad domestic service and bad municipal service; but physicians, at least, do not need to be told that it is one thing to prescribe for a patient and quite another to persuade that patient to follow good advice.

Let us next inquire what responses these various calls of the scientific age for life and health have hitherto awakened or are now awakening, and what should be the attitude of the young men just graduating in medicine toward the new movement. The first, though perhaps in part unconscious, responses were those of the eighteenth century reformers, Voltaire, Beccaria, Turgot and others, in France, and Lady Montagu, John Howard, Captain Cook the navigator, and, above all, Edward Jenner, in England. The eighteenth century, and especially that portion of it in which Mr. John Morley has happily located the scientific renascence, consciously or unconsciously felt the beginning of the new movement; and in Voltaire's "Man of Calas," in Captain Cook's famous second voyage, in John Howard's travels and revelations, in Lady Montagu's introduction of inoculation and Jenner's work on vaccination for smallpox, began to shake off medieval ideas of life, death, health, dirt and disease, and to prepare for Virchow and Darwin, and Pasteur and Koch and von Behring in the nineteenth century. As one of the foremost responses of the nineteenth century we must put that perhaps unconscious one which began, we are told, exactly a century ago, and which is known as the temperance movement. Under whatever form,

and however fanatical or foolish, or at times even harmful, he may have been, the temperance or prohibitionist agitator has always urged the salvation of the body as well as the soul; the conservation of family life threatened with ruin by drunkenness; the social significance and the economic importance of temperance, and even abstinence, as regards alcohol.

I make this acknowledgment with special pleasure, because on another occasion, and because of the fanatical and harmful subjection of public-school education in physiology to the so-called "scientific temperance" propaganda, I have publicly and severely criticised and even castigated that form of the movement. Of that criticism I have absolutely nothing to retract; but I here gladly give high honor to the authors and promotors of the temperance movement in its broader features, for having done the age a great service by urging its attention to the welfare of the body, and insisting that the salvation of the body from drunkenness and the horrible sequelæ of alcoholism is not only possible, but also worth while. The use of alcoholic liquors, oddly enough, had already served sanitary science well, much earlier, since lead poisoning appears to have been first detected by a physician, Sir George Baker, among drinkers of Devonshire cider—the cider mills of Devonshire in the eighteenth century having had lead connections, easily soluble in the acids of apple juice.

Of contemporary response nothing has equalled, or even approached in breadth and significance, the anti-tuberculosis movement. Begun by laymen—as were also the earliest boards of health—this movement has become especially important because of the co-operation in the campaign, on an equal footing, of medical men and laymen. In this anti-tuberculosis movement the medical profession has for the first time, as far as I know, thrown off the ancient mantle of professional exclusiveness in dealing with a medical problem, and invited the public to share with themselves all of their professional knowledge—and ignorance. This step seems to me of extreme importance and sure to prove of lasting honor to the profession. The clergy long since led the way and shared their knowledge and their aspirations with the people; the medical profession has now taken the same democratic and inevitable step, and it only remains for teachers and practitioners of the law to follow suit. Perhaps when they have done this our legislatures will be improved and our cities better governed. For better or worse, America has embraced democracy, and in a democracy any professionalism that smacks of aristocracy or unnecessary secrecy, is out of place.

Official recognition of the call to public health began in the nineteenth century with the factory acts, the health of towns' commission, and the organization of State and local boards of health. State medicine has powerfully responded to the call in England, and of

late in Germany, but in our own land more slowly. The National Board of Health of the United States had an honorable if brief existence about a quarter of a century ago. The State Board of Health of Massachusetts, reorganized upon a thoroughly modern plan in 1886, has won great and deserved distinction, and still maintains its leadership among all our State boards. Michigan and Connecticut, and especially Ohio, New York and Pennsylvania, and very lately Virginia, have followed after. In Massachusetts, and to some extent in the other States, investigation has been added to administration as a State function, and with the happiest results. Here and there municipal boards of health have responded heartily to the call to public health, but as a rule these boards are poorly made up, poorly officered and little respected. Here, then, is a place where the young physician can often take hold and help to forward the cause. He can urge and work for the establishment and support of a good chemical, bacteriological and diagnostic laboratory; he can report his cases of infectious disease promptly; he can appear before the local medical society, or the local academy of arts and sciences, or the local natural history society, and urge upon its members the importance of clean streets, pure water, fresh and clean milk, tenement-house inspection, and the like. He can even write to the newspapers, without fear of any breach of professional ethics, advocating these reforms. The medical man who advertises himself is more obnoxious to-day than ever before; but the man who writes to the papers and has something vital to say, even if he makes himself known and talked about thereby, is rightly held to be doing good. In this connection a word should be added of hearty appreciation of the splendid work done by the Harvard Medical School in its free courses of popular lectures on medical subjects, given during the last two winters before large and appreciative audiences in Boston.

The call to health and preventive medicine has met with no quicker or heartier response anywhere than from workers in applied science and technology—engineers, chemists, biologists, bacteriologists and statisticians. The appointment by the Governor of Massachusetts of Mr. Hiram F. Mills, a distinguished hydraulic engineer, to a position on the State Board of Health in 1886, and his election by his colleagues to the chairmanship of the committee on water supply and sewerage, marked a new epoch in public-health science, and was a direct response to the call for expert leadership in the hygiene and sanitation of the environment. The establishment of an engineering division of the work of the board naturally followed; and this example has been imitated with success by other boards, notably those of Connecticut, Ohio, Pennsylvania and New York. The fact is, as I have shown on another occasion, that full knowledge of all the numerous aspects of public-health science and preventive medicine has

become impossible for any one man, or any one kind of man, so that various kinds of experts must to-day co-operate. The great municipal filtration works, which to-day purify our rivers, are not built or operated or even thoroughly understood by medical men. They are built and operated by engineers, tested and proved by bacteriologists, and paid for by the people.

The medical departments of the army and the navy are making their own responses to the call to public health. The magnificent work of those self-sacrificing officers of the army medical corps which gave us our present ideas of yellow fever control has shed renown upon the whole American medical profession. And the brilliant achievements of the United States Public Health and Marine Hospital Service, in applying these ideas and discoveries to the actual suppression of the great yellow fever epidemic of 1905, have added honorably and materially to that renown. The more recent and remarkably efficient work of this same branch of the Federal service in controlling the alarming outbreak of bubonic plague on the Pacific Coast deserves the highest praise. Both achievements, especially when added to the orderly, extensive and fruitful investigations constantly going forward in the Hygienic Laboratory of the Public Health and Marine Hospital Service, ought to make the fact better known than it yet is, that we already possess the very large and active nucleus of a National board of health, prepared at all times to respond to the call of States or cities in sanitary distress or in need of sound advice on public-health matters. When to all these responses and successes we add that greatest of all modern sanitary achievements, the making habitable of the Isthmian Canal Zone, largely through the genius of one man, we need not be surprised that the American Medical Association has chosen that man for its next president, namely, Colonel William C. Gorgas, medical member of the Isthmian Canal Commission, but a sanitarian rather than an ordinary medical man.

Enough has been said to show the marvelous responses made or making on every hand to the call with which we are dealing. And yet much more might be said. The establishment of the Rockefeller Institute for Medical Research, of the McCormick Institute for Infectious Diseases, of sanitary and engineering research laboratories, of a permanent and well-equipped Federal census bureau, the recent proposal of Dr. Ditman, of Columbia University, for the establishment of a school of sanitary science and preventive medicine—all these testify that the call to health is being heard and answered.

The relation of the physician to the public is rapidly changing. He will soon be expected to be as proficient in the art of prevention as in that of healing. He will not be expected to build waterworks or sewerage systems, or to install systems of street cleaning, or garbage disposal, or heating and ventilation. These will be left,

where they belong, with the sanitary engineer. He will not be expected to be an analyst of foods and drugs, or a judge of their purity. Public-health work of this kind belongs to the sanitary chemist. He will not usually, though he will occasionally, be a bacteriologist to boards of health, or sanitary testing stations, or municipal waterworks, or sewage filters. Such work will be done more and more by sanitary biologists. What he will do, will be, first and foremost, to fulfill that most ancient and most honorable function of the medical man and remain the trusted and intimate medical adviser of individuals and of families in sickness and in health. He will not, however, be content with this alone. He will seek, in season and out of season, not merely to cure, but still more to prevent disease among individuals, families and communities, by urging higher standards of living; by teaching temperance in all things; by advocating pure water, pure milk, pure food, pure living. If it is in him to be an investigator or a teacher, he will be one or both of these things. If not, he will be a frank and honest, but not a captious critic; he will mold and reform, if he cannot lead, public opinion. And by so doing he will give to his day and his generation noble and useful service; he will respond to the call of the age; he will do his part for the public health; he will uphold greatly the traditions of a great profession.

REVIEW OF DISEASES FOR JANUARY, 1910.

SEVENTY-NINE COUNTIES REPORTING.

Ninety-seven counties have superintendents of health.

Except in the case of the more contagious diseases, the superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of noncontagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of January the following diseases have been reported from the counties named:

SMALLPOX.—Alamance, 39; Beaufort, 7; Bertie, 6; Bladen, 3; Burke, 20; Cabarrus, 13; Caldwell, 8; Carteret, 1; Catawba, 20; Chatham, 1; Chowan, 11; Cleveland, 1; Craven, 1; Davidson, 15; Davie, 18; Duplin, 1; Durham, 3; Edgecombe, 22; Forsyth, 46; Guilford, 61; Iredell, 4; Johnston, 11; Lenoir, 30; Lincoln, 1; McDowell, 48; Mecklenburg, 32; Nash, 50; Onslow, 4; Pamlico, several; Perquimans, 4; Pitt, 42; Randolph, 1; Rockingham, 20; Rowan, 4; Rutherford, 19; Sampson, 1; Stokes, 140; Union, 45; Wake, 25; Wilkes, 9; Wilson, 71; Yadkin, 5; Yancey, 14—43 counties.

MEASLES.—Alamance, few; Alexander, 10; Cabarrus, epidemic; Caldwell, 7; Carteret, several; Catawba, few; Clay, 2; Cleveland, few; Craven, 1; Davidson, 12; Davie, few; Duplin, 6; Forsyth, 3; Haywood, 1; Johnston, few; Lincoln, 8; Martin, 1; Mecklenburg; Montgomery, 7; Pamlico, several; Randolph, epidemic; Rockingham; Rowan, epidemic; Rutherford, 7; Sampson, few; Stanly, many; Union, epidemic; Wake, 4; Wilkes, 75; Yadkin, 7; Yancey, 2—31 counties.

WHOOPING-COUGH.—Bertie, 7; Bladen, few; Caldwell, 25; Cherokee, 4; Cleveland, few; Davie, few; Duplin, 8; Durham, few; Forsyth, several; Graham, several; Haywood, several; Henderson, few; Hertford, 40; McDowell, 2; Martin, 1; Mecklenburg; Montgomery, 1; Pasquotank, few; Person, 5; Robeson, 10; Rowan, few; Rutherford, 14; Stanly, few; Wake, 5; Watauga, 3; Wilkes, several—26 counties.

SCARLATINA.—Alamance, 1; Alleghany, 1; Ashe, 2; Beaufort, 12; Burke, 1; Camden; Caldwell, 3; Cleveland, few; Craven, 5; Currituck, 4; Davidson, 2; Edgecombe, 3; Forsyth, 3; Granville, 10; Henderson, 1; Iredell, several; Johnston, 1; Martin, 1; Mecklenburg; Nash, 2; New Hanover, 1; Onslow, 3; Pamlico, 2; Pasquotank, 1; Rockingham; Rutherford, 3; Wake, 15; Wilson, 12—28 counties.

DIPHTHERIA.—Alexander, 2; Ashe, 1; Brunswick, 1; Camden, 11; Chatham, 1; Cherokee, 4; Chowan, 1; Columbus, 1; Currituck, 2; Davidson, 3; Davie, 1; Duplin, 8; Edgecombe, 5; Forsyth, 2; Gates, 5; Granville, 2; Guilford, 9; Haywood, 4; Henderson, 1; Iredell, 1; Macon, 1; Mecklenburg; Montgomery, 4; Pasquotank, 1; Rockingham; Rowan, 1; Tyrrell, 1; Union, 1; Wake, 2; Warren, 2; Watauga, 2; Wilkes, 1—32 counties.

TYPHOID FEVER.—Alexander, 10; Brunswick, 1; Catawba, 1; Cherokee, 1; Columbus, 5; Duplin, 4; Edgecombe, 2; Gates, 2; Graham, 1; Granville, 1; Jackson, 1; Lenoir, 3; McDowell, 2; Madison, 1; Martin, 2; Mecklenburg; New Hanover, 2; Pamlico, 5; Pender, 2; Person, 2; Robeson, 11; Rutherford, 5; Scotland, 3; Tyrrell, 1; Union, 3; Wake, 4; Washington, 3; Watauga, 1—28 counties.

MALARIAL FEVER, PERNICIOUS.—Beaufort, 1; Bertie, several; Davidson—3 counties.

PNEUMONIA.—Alexander, 24; Alleghany, 10; Ashe, several; Beaufort, 2; Bertie, 2; Bladen, 3; Brunswick, several; Burke, few; Cabarrus; Caldwell, 15; Camden; Carteret, 3; Catawba, few; Chatham, 15; Cherokee, 1; Chowan, several; Cleveland, a great many; Columbus, 4; Craven, several; Currituck, 1; Davidson, 25; Davie, many; Duplin, 9; Durham, few; Forsyth, few; Gates, 7; Graham, 1; Granville, 4; Guilford; Haywood, 15; Henderson, 3; Hertford, 4; Hyde, 1; Iredell, many; Jackson, 3; Johnston, several; Lenoir, 18; Lincoln, 20; McDowell, 3; Macon, 4; Madison, 6; Martin, few; Mecklenburg; Montgomery, 29; Nash, 4; New Hanover, 2; Onslow, few; Pamlico, 2; Pender, 1; Person, 15; Perquimans, many; Pitt, 4; Randolph, 5; Robeson, 50; Rowan, quite a number; Sampson, few; Scotland, 6; Stanly, few; Stokes, 5; Tyrrell, 10; Union, many; Wake, 51; Washington, 2; Watauga, 10; Wilkes, 18; Yancey, 3—66 counties.

CEREBRO-SPINAL MENINGITIS.—Alleghany, 1; Davie, 1; Gates, 1; Hertford, 2; Wake, 2; Wilkes, 1—6 counties.

INFLUENZA.—Ashe; Brunswick; Camden; Cleveland; Columbus; Currituck; Davie; Graham; Granville; Macon; Madison; Montgomery, 75; Onslow; Pender; Person; Perquimans; Rockingham; Stanly; Tyrrell; Washington; Yadkin; Yancey—22 counties.

CHOLERA, IN HOGS.—Beaufort.

DISTEMPER.—Stokes.

MUMPS.—Bladen; Brunswick—2 counties.

CATARRHAL DISEASES.—Henderson.

CHOLERA INFANTUM.—Caldwell.

No diseases reported from Buncombe, Orange, Polk and Vance.

No reports received from Anson, Caswell, Cumberland, Dare, Franklin, Gaston, Greene, Halifax, Harnett, Jones, Lee, Mitchell, Moore, Northampton, Richmond, Surry, Swain, Transylvania and Wayne.

Mortuary Report for January, 1910.

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septæmia.	Pellagra.	Deaths, 0-1.	Deaths, 1-19.	Deaths, 20-39.	Deaths, 40-59.	Deaths, 60 and Over.	Still-born (not included).
ALBEMARLE	W.	--------	2,000	1	1	------	0.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	1	--	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ASHEVILLE	W.	24,000	30,000	15	24	7.5	9.6	--	--	--	--	--	--	3	9	--	3	--	--	--	--	--	--	--	--	--	--	1	--	--	8	4	4	--
	C.	6,000		9		18.0		--	--	--	--	--	--	3	3	--	--	--	--	1	2	--	--	--	--	--	--	--	2	2	4	--	1	3
BEAUFORT	W.	--------	2,750	2	5	------	21.8	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	--	--	--	1	--	1	--
	C.	--------		3		------		--	--	--	--	--	--	--	--	--	--	--	--	3	--	--	--	--	--	--	--	--	--	--	--	1	2	--
BESSEMER CITY	W.	--------	1,500	2	2	------	16 0	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	--	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
BURLINGTON	W.	--------	6,000	6	7	------	12.3	--	--	--	--	--	--	1	--	1	2	--	--	1	--	--	--	--	1	--	--	--	1	1	1	3	1	1
	C.	--------		1		------		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1	--	--	--	--	--
CHAPEL HILL	W.	1,000	1,500	1	3	12.0	2.4	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	1	--
	C.	500		2		24.0		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--
CHARLOTTE	W.	--------	45,000	44	71	------	18.9	2	--	--	--	--	1	12	5	3	3	1	--	11	6	--	--	--	1	--	--	--	8	7	14	1	15	3
	C.	--------		27		------		--	--	--	--	--	--	5	4	--	2	1	1	10	1	--	--	--	--	3	--	--	4	6	9	1	6	2
CHERRYVILLE	W.	2,198	2,204	2	2	10.9	10.8	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
	C.	6		0		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CONCORD	W.	10,000	12,000	15	17	18.0	17.0	--	--	--	--	--	2	5	2	--	3	--	--	3	--	--	--	--	--	--	--	--	7	2	4	--	2	--
	C.	2,000		2		12.0		--	--	--	--	--	--	--	--	1	--	--	--	1	--	--	--	--	--	--	--	--	1	--	1	--	--	--
DUNN	W.	--------	------*	----	----	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	--------		----		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septæmia.	Pellagra.	Deaths, 0-1.	Deaths, 1-19.	Deaths, 20-39.	Deaths, 40-59.	Deaths, 60 and Over.	Still-born (not included).
DURHAM	W.	--------	22,500	23	46	------	24.4	--	--	--	--	--	--	4	3	3	2	--	--	5	--	1	--	2	1	1	1	--	2	4	7	4	7	--
	C.	--------		23		------		1	--	--	--	--	--	4	2	--	--	--	1	9	--	1	--	--	--	--	--	--	5	4	4	4	1	--
EDENTON	W.	--------	4,500	2	4	------	1.6	--	--	--	--	--	--	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	1	--
	C.	--------		2		------		--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	1	--	--
ELIZABETH CITY	W.	6,000	10,000	6	14	12.0	16.8	--	--	--	--	--	--	1	--	--	--	--	1	4	--	--	--	--	--	--	--	--	2	--	--	1	3	--
	C.	4,000		8		24.0		--	--	--	--	--	--	2	--	1	--	--	--	3	--	--	--	--	1	--	1	--	1	6	--	--	1	--
FAYETTEVILLE	W.	6,000	10,000	3	5	6.0	6.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	2	1	1
	C.	4,000		2		6.0		--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	2	--	--	--
FOREST CITY	W.	--------	2,600	1	1	------	4.6	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1	--	--	--	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GASTONIA	W.	--------	9,500	9	13	------	16.4	--	--	--	--	--	--	3	--	--	--	--	--	3	1	1	--	--	1	--	--	--	2	1	3	--	3	--
	C.	--------		4		------		--	--	--	--	--	--	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	2	--	--	--	--
GOLDSBORO	W.	--------	10,000	7	15	------	18.0	--	--	1	--	--	--	4	1	--	--	--	--	--	--	--	--	1	--	--	--	--	--	2	--	3	2	--
	C.	--------		8		------		--	--	--	--	--	--	--	2	--	--	--	--	6	--	--	--	--	--	--	--	--	2	2	--	1	3	--
GRAHAM	W.	--------	--------	----	----	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	--------		----		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GREENSBORO	W.	16,000	20,000	23	41	17.2	24.6	--	--	--	--	--	--	7	1	1	1	--	--	10	1	--	--	2	--	--	--	--	4	4	2	11	2	2
	C.	4,000		18		54.4		--	--	--	--	--	--	5	5	2	1	1	--	2	--	--	--	--	1	1	--	--	4	2	6	4	2	2
GREENVILLE	W.	--------	5,000	1	3	------	7.2	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1	--	--	--
	C.	--------		2		------		--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--	--	--	--	--	--	1	--	--	--	1	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septæmia.	Pellagra.	Deaths, 0-1.	Deaths, 1-19.	Deaths, 20-39.	Deaths, 40-59.	Deaths, 60 and Over.	Still-born (not included).
HENDERSON	W.	--------	7,500	4	6	------	9.6	--	--	--	--	--	--	2	--	--	--	--	--	2	--	--	--	--	--	--	--	--	2	--	2	--	--	--	--
	C.	--------		2		------		--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	1	1	--	--
HENDERSONVILLE	W.	--------	3,500	3	3	------	10.2	--	--	--	--	--	--	1	1	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	2	1	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HERTFORD	W.	--------	2,000	0	2	------	12.0	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--
	C.	--------		2		------		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
HICKORY	W.	4,000	5,000	3	4	9.0	9.6	--	--	--	--	--	--	--	2	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1	1	--	--
	C.	1,000		1		12.0		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	1	--	--
HIGH POINT	W.	9,000	12,000	5	10	6.6	10.0	--	--	--	--	--	1	2	--	--	1	--	--	1	--	--	--	--	--	--	--	--	1	1	--	1	2	1
	C.	3,000		5		20.0		--	--	--	--	--	--	3	2	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	2	1	1	1
KING'S MOUNTAIN	W.	--------	4,000	3	3	------	9.0	--	--	--	--	--	--	1	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	1	1
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KINSTON	W.	--------	9,000	6	13	------	17.3	--	--	--	--	--	--	2	--	--	--	--	--	2	1	--	--	--	--	1	--	--	--	2	--	2	2	2
	C.	--------		7		------		--	--	--	--	--	--	3	1	--	--	--	--	2	1	--	--	--	--	--	--	--	--	--	5	2	--	--
LAURINBURG	W.	--------	4,000	3	3	------	9.0	--	--	--	--	--	--	--	2	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	2	--	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LENOIR	W.	--------	4,000	4	4	------	12 0	--	--	--	--	--	1	1	1	1	--	--	--	--	--	--	--	--	--	--	--	--	1	1	1	--	1	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LEXINGTON	W.	5,000	6,000	6	6	14.4	12.0	--	--	--	--	--	--	2	1	--	--	1	--	2	--	--	--	--	--	--	--	--	--	3	2	--	1	--
	C.	1,000		0		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septæmia.	Pellagra.	Deaths, 0-1.	Deaths, 1-19	Deaths, 20-39.	Deaths, 40-59.	Deaths, 60 and Over.	Still-born (not included).
LOUISBURG	W.		2,500		*																													
	C.																																	
McADENSVILLE	W.		1,140	1	2		21.0					1																						
	C.			1										1															1					
MARION	W.		1,500	2	2		16.0								1					1									1					
	C.			0																									1		1			
MONROE	W.		5,000	4	6		14.4							1	1					1				1					1			3		
	C.			2										1						1									1			1		2
MOORESVILLE	W.		3,500	2	2		6.8													2									1			1		
	C.			0																														
MORGANTON	W.		3,000		*																													
	C.																																	
MOREHEAD CITY	W.		2,500	3	4		19.2							2						1						1			1		1	1		
	C.			1																														
MOUNT AIRY	W.		5,100	6	6		14.1				1			2	1		1			1									3	2		1	1	
	C.			0																														
NEW BERN	W.	7,500	15,000	3	14	4.8	11.2							1	1		1												1		1	1	1	
	C.	7,500		11		17.6									2	2	2			3	1				1				4	4	1	3		
NEWTON	W.	3,000	3,250		*																													
	C.	250																																

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septæmia.	Pellagra.	Deaths, 0–1.	Deaths, 1–19.	Deaths, 20–39.	Deaths, 40–59.	Deaths, 60 and Over.	Still-born (not included).
OXFORD	W.	2,200	4,000	2	3	10.9	9.0	--	--	--	--	--	--	1	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1	--	--	1	--	--
	C.	1,800		1		6.6		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1	--	--	--	--	1
PLYMOUTH	W.	--------	2,500	----	----	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	--------		----		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RALEIGH	W.	14,000	25,000	23	42	19.7	20.1	--	--	--	--	--	--	1	3	8	3	--	--	5	1	--	--	--	1	1	--	--	2	2	4	5	11	2
	C.	11,000		19		20.7		--	--	1	--	--	--	8	1	2	--	--	--	4	--	--	--	1	--	2	--	--	2	4	3	2	6	1
RANDLEMAN	W.	--------	2,800	1	1	------	4.2	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	1	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REIDSVILLE	W.	3,034	5,188	4	8	15.8	18.5	--	--	--	--	--	--	1	1	--	1	--	--	1	--	--	--	--	--	--	--	--	3	--	--	--	1	--
	C.	2,154		4		22.2		--	--	--	--	--	--	1	2	--	--	--	--	1	--	--	--	--	--	1	--	--	1	2	1	1	--	--
ROANOKE RAPIDS	W.	2,000	2,025	2	2	12.0	10.8	--	--	--	--	--	--	1	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1	--	--	--	1	--
	C.	25		0		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ROCKINGHAM	W.	--------	3,500	2	4	------	13.7	--	--	--	--	--	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	--
	C.	--------		2		------		1	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	1	--
ROCKY MOUNT	W.	6,000	9,000	10	20	20.0	26.6	--	--	--	--	--	--	3	1	2	1	--	--	3	--	--	--	--	--	--	--	--	1	4	1	1	3	2
	C.	3,000		10		40.0		--	--	--	--	--	--	2	4	--	--	--	--	2	1	--	1	--	--	--	--	--	1	1	3	3	2	--
ROXBORO	W.	2,000	2,500	4	5	24.0	24.0	--	--	--	--	--	--	--	1	--	--	--	--	3	--	--	--	--	--	--	--	--	--	--	2	1	--	--
	C.	500		1		24.0		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--
SALEM	W.	3,000	3,400	6	6	24.0	21.1	--	--	--	--	2	--	2	--	1	--	--	--	--	--	--	--	--	--	--	1	--	3	--	--	1	2	2
	C.	400		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septæmia.	Peliagra.	Deaths, 0-1.	Deaths, 1-19.	Deaths, 20-39.	Deaths, 40-59.	Deaths, 60 and Over.	Still-born (not included).
SALISBURY	W.	12,000	16,000	21	32	21.0	24.0	--	--	--	1	--	1	5	1	2	--	--	--	7	3	--	--	--	--	1	--	--	2	8	2	2	6	1
	C.	4,000		11		33.0		--	--	--	--	--	--	1	1	--	3	--	1	3	1	--	--	--	1	--	--	--	2	4	1	2	2	--
SANFORD	W.	--------	4,000	3	3	------	9.0	--	--	--	--	--	--	1	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	2	--	1	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SCOTLAND NECK	W.	1,200	1,800	3	3	3.0	2.0	--	--	--	--	--	--	--	2	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	1	--
	C.	600		0		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SHELBY	W.	--------	4,000	2	3	------	9.0	--	--	--	--	--	--	1	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	2	--
	C.	--------		1		------		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	1	--
SOUTHPORT	W.	--------	1,500	4	5	------	40.0	--	--	--	--	--	--	2	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	--	2	2	--
	C.	--------		1		------		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1	--	--	--	--
STATESVILLE	W.	--------	5,000	9	10	------	24.0	--	--	--	--	--	--	1	1	--	1	--	--	6	--	--	--	--	--	--	--	--	1	3	2	1	2	--
	C.	--------		1		------		--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--
TARBORO	W.	2,800	3,600	4	8	17.1	26.6	--	--	--	--	--	--	2	--	--	1	--	--	1	--	--	--	--	--	--	--	--	1	--	1	2	--	--
	C.	800		4		60.0		--	--	--	--	--	--	--	--	--	--	--	--	3	1	--	--	--	--	--	--	--	2	2	--	--	--	--
WADESBORO	W.	2,200	3,500	1	1	5.4	3.4	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
	C.	1,300		0		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WASHINGTON	W.	--------	10,000	7	9	------	8.4	--	--	1	--	--	--	--	1	--	--	--	--	5	--	--	--	--	--	--	--	--	1	1	1	1	3	--
	C.	--------		2		------		--	--	--	--	--	--	--	1	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1	1	--	--	1
WAYNESVILLE	W.	--------	3,500	10	10	------	34.2	--	--	--	--	1	--	2	1	--	--	--	--	4	1	--	--	1	--	--	--	--	2	2	1	4	1	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septicæmia.	Pellagra.	Deaths, 0-1.	Deaths, 1-19.	Deaths, 20-39.	Deaths, 40-59.	Deaths, 60 and Over.	Still-born (not included).
WELDON	W.	1,300	2,500	1	5	9.2	24.0	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1	--	--	--	--	--
	C.	1,200		4		40.0		--	--	--	--	--	--	--	2	--	1	--	--	--	--	--	--	--	--	1	--	--	1	1	2	--	--	--
WILMINGTON	W.	--------	35,000	15	42	------	14.4	--	--	--	--	--	--	1	1	5	--	2	--	6	--	--	--	--	--	--	--	--	5	2	2	3	4	1
	C.	--------		27		------		--	--	--	--	--	--	7	4	3	2	2	--	6	1	1	--	1	--	--	--	--	7	--	3	6	9	3
WILSON	W.	5,000	8,500	11	19	26.4	26.7	1	1	--	--	--	--	1	2	--	2	--	--	2	1	--	--	--	--	--	--	--	1	1	3	4	2	--
	C.	3,500		8		27.4		--	--	--	--	1	--	1	2	--	--	--	--	4	--	--	--	--	--	--	--	--	2	1	4	--	1	3
WINSTON	W.	14,000	22.000	4	19	12.0	11.5	--	--	--	--	--	--	4	1	2	--	--	1	5	--	--	--	--	--	1	--	--	5	2	3	2	2	--
	C.	8,000		15		22.5		--	--	--	--	--	--	3	2	2	3	--	--	4	1	--	--	--	--	--	--	--	1	1	6	7	1	3

*No report.

SUMMARY REPORT FOR JANUARY, 1910.

Causes of Death.	*White.*	*Colored.*	*Total.*
Typhoid fever	3	1	4
Scarlet fever	1	0	1
Malarial fever	2	1	3
Diphtheria	2	0	2
Whooping-cough	6	1	7
Measles	6	0	6
Pneumonia	87	48	135
Consumption	51	44	95
Brain disease	32	13	45
Heart disease	25	14	39
Neurotic diseases	5	6	11
Diarrheal diseases	2	5	7
All other diseases	105	78	183
Accident	15	9	24
Suicide	2	2	4
Violence	0	1	1
Cancer	8	3	17
Meningitis	6	4	10
Influenza	8	8	16
Puerperal septæmia	1	1	2
Pellagra	1	0	1
	368	239	607
Deaths 0— 1 year	65	46	111
Deaths 1—19 years	60	54	114
Deaths 20—39 years	82	60	142
Deaths 40—59 years	75	38	113
Deaths 60 years and over	97	44	141
Still-born	20	22	42

County Superintendents of Health.

Alamance	Dr. J. W. Long	Burlington.
Alexander	Dr. O. L. Hollar	Taylorsville.
Alleghany	Dr. B. O. Choat	Sparta.
Anson	Dr. E. S. Ashe	Wadesboro.
Ashe	Dr. J. C. Testerman	Jefferson.
Beaufort	Dr. P. A. Nicholson	Washington.
Bertie	Dr. J. L. Pritchard	Windsor.
Bladen	Dr. L. B. Evans	Clarkton.
Brunswick	Dr. J. A. Dosher	Southport.
Buncombe	Dr. D. E. Sevier	Asheville.
Burke	Dr. J. R. Anderson	Morganton.
Cabarrus	Dr. J. W. Wallace	Concord.
Caldwell	Dr. C. L. Wilson	Lenoir.
Camden	Dr. C. G. Ferebee	Gregory.
Carteret	Dr. W. E. Headen	Morehead City.
Caswell	Dr. S. A. Malloy	Yanceyville.
Catawba	Dr. T. C. Blackburn	Hickory.
Chatham	Dr. L. E. Farthing	Pittsboro.
Cherokee	Dr. J. F. Abernethy	Murphy.
Chowan	Dr. H. M. S. Cason	Edenton.
Clay	Dr. J. M. Sullivan	Hayesville.
Cleveland	Dr. T. E. McBrayer	Shelby.
Columbus	Dr. H. B. Maxwell	Whiteville.
Craven	Dr. J. F. Rhem	New Bern.
Cumberland	Dr. W. S. Jordan	Fayetteville.
Currituck	Dr. H. M. Shaw	Shawboro.
Dare		
Davidson	Dr. E. J. Buchanan	Lexington.
Davie	Dr. M. D. Kimbrough	Mocksville.
Duplin	Dr. J. A. Ferrell	Kenansville.
Durham	Dr. N. M. Johnson	Durham.
Edgecombe	Dr. S. P. Bass	Tarboro.
Forsyth	Dr. J. K. Pepper	Winston.
Franklin	Dr. R. F. Yarborough	Louisburg.
Gaston	Dr. L. N. Glenn	Gastonia.
Gates	Dr. G. D. Williams	Gatesville.
Graham	Dr. M. T. Maxwell	Robbinsville.
Granville	Dr. S. D. Booth	Oxford.
Greene	Dr. W. B. Murphy	Snow Hill.
Guilford	Dr. Edmond Harrison	Greensboro.
Halifax	Dr. I. E. Green	Weldon.
Harnett	Dr. L. F. Abernethy	Lillington.
Haywood	Dr. J. R. McCracken	Waynesville.
Henderson	Dr. J. G. Waldrop	Hendersonville.
Hertford	Dr. J. H. Mitchell	Ahoskie.
Hyde	Dr. R. E. Windley	Lake Landing.
Iredell	Dr. M. R. Adams	Statesville.
Jackson	Dr. A. S. Nichols	Sylva.
Johnston	Dr. A. H. Rose	Smithfield.
Jones	Dr. A. F. Hammond	Pollocksville.
Lee	Dr. J. P. Monroe	Sanford.
Lenoir	Dr. N. A. Whitaker	Kinston.
Lincoln	Dr. J. W. Saine	Lincolnton.
McDowell	Dr. Guy S. Kirby	Marion.

Macon	Dr. S. H. Lyle	Franklin.
Madison	Dr. W. J. Weaver	Marshall.
Martin	Dr. W. E. Warren	Williamston.
Mecklenburg	Dr. C. S. McLaughlin	Charlotte.
Mitchell	Dr. V. R. Butt	Bakersville.
Montgomery	Dr. C. Daligny	Troy.
Moore	Dr. Gilbert McLeod	Carthage.
Nash	Dr. J. P. Battle	Nashville.
New Hanover	Dr. W. D. McMillan	Wilmington.
Northampton	Dr. H. W. Lewis	Jackson.
Onslow	Dr. Cyrus Thompson	Jacksonville.
Pamlico	Dr. D. A. Dees	Bayboro.
Pasquotank	Dr. H. T. Aydlett	Elizabeth City.
Pender	Dr. R. H. Bradford	Burgaw.
Perquimans	Dr. T. P. McMullen	Hertford.
Person	Dr. W. T. Long	Roxboro.
Pitt	Dr. W. M. Fountain	Greenville.
Polk	Dr. W. R. Engel	Tryon.
Randolph	Dr. N. C. Hunter	Rockingham.
Robeson	Dr. W. A. McPhail	Lumberton.
Rockingham	Dr. Sam Ellington	Wentworth.
Rowan	Dr. M. L. Smoot	Spencer.
Rutherford	Dr. E. B. Harris	Rutherfordton.
Sampson	Dr. A. M. Cooper	Clinton.
Scotland	Dr. K. A. Blue	Laurinburg.
Stanly	Dr. J. N. Anderson	Albemarle.
Stokes	Dr. J. W. Neal	Walnut Cove.
Surry	Dr. J. R. Woltz	Dobson.
Swain	Dr. A. M. Bennett	Bryson City.
Transylvania	Dr. Goode Cheatham	Brevard.
Tyrrell	Dr. J. L. Spruill	Columbia.
Union	Dr. H. D. Stuart	Monroe.
Vance	Dr. E. F. Fenner	Henderson.
Wake	Dr. J. J. L. McCullers	McCullers.
Warren	Dr. M. P. Perry	Macon.
Washington	Dr. W. H. Ward	Plymouth.
Watauga	Dr. J. M. Hodges	Boone.
Wayne	Dr. T. M. Bizzell	Goldsboro.
Wilkes	Dr. E. M. Hutchens	North Wilkesboro.
Wilson	Dr. W. S. Anderson	Wilson.
Yadkin	Dr. T. R. Harding	Yadkinville.
Yancey	Dr. W. B. Robertson	Burnsville.

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RALEIGH, N. C.

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BULLETIN

Dr. I. H. Manning

NORTH CAROLINA BOARD OF HEALTH

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Vol. XXIV. MARCH, 1910. No. 12.

THE PREACHERS' BULLETIN

FOR

SANITARY SUNDAY

APRIL 24, 1910

I am come that they might have life, and that they might have it more abundantly.—John x:10.

*Deceased.

RELIGIO MEDICI.

Thus there are two books from whence I collect my divinity. Besides that written one of God, another of His servant, Nature, that universal and public manuscript that lies exposed unto the eyes of all. Those that never saw Him in the one have discovered Him in the other. This was the scripture and theology of the heathens; the natural motion of the sun made them more admire Him than its supernatural station did the children of Israel. The ordinary effect of nature wrought more admiration in them than, in the other, all His miracles. Surely, the heathen knew better how to join and read these mystical letters than we Christians, who cast a more careless eye on these common hieroglyphics, and disdain to suck divinity from the flowers of Nature.—Sir Thomas Browne.

APPEALS FOR SANITARY SUNDAY.

AN APPEAL TO ALL TRUE DISCIPLES OF THE GREAT PHYSICIAN, FROM THE STATE BOARD OF HEALTH.

The State Board of Health, representing both the State Government and the North Carolina Medical Society, do, in the name of humanity and by authority of Him who commanded His disciples "to preach the kingdom of God *and to heal the sick*," appeals to the ministry of the State—four thousand strong—to unite on April 24, 1910, as SANITARY SUNDAY,* and contribute their influence, through their respective pulpits, towards the improvement of our public health, that it may not be said of them, "The diseased have ye not strengthened, neither have ye healed that which was sick."

As it is impossible, both on account of the nature of the subject-matter and the numerous details, for the minister to deal with any particular public-health subject, we ask that he present to his people the general facts dealt with in the pages of this Bulletin, which may be considered under the following subdivisions:

1. *That the forces of disease are largely under the control of man, and, therefore, all deaths are not dispensations of Providence.*

2. *That, this being so, it is one's duty to one's self, to humanity, and to God, to learn the few, simple principles of disease prevention for those diseases prevalent in the home town or community.*

3. *That this information may be obtained without cost by sending a postal to the State Board of Health, at Raleigh, for literature on this subject; that the distribution of such information and the formation of a more sensitive, intelligently sympathetic, sanitary conscience is sorely needed; that this need can only be supplied by sending men to the Legislative Halls who will be as careful to make laws and provision for the protection of health and life as they are to provide for the protection of property.*

AN APPEAL FROM GOVERNOR KITCHIN.

STATE OF NORTH CAROLINA,
EXECUTIVE DEPARTMENT,
RALEIGH, March 30, 1910.

DR. W. S. RANKIN,
Secretary State Board of Health,
Raleigh, N. C.

DEAR SIR:—I take pleasure in joining you in requesting the ministers of the State to observe April 24th as "Sanitary Sunday," and I sincerely trust that throughout the State the ministers will on that day emphasize the importance of sanitation.

With best wishes. Yours truly, W. W. KITCHIN,
Governor.

*For those churches or congregations not having a service on April 24th, we respectfully request that the first Sunday service following this date be devoted to the purpose of Sanitary Sunday.

LETTER FROM FORMER SECRETARY RICHARD H. LEWIS, ENDORSING SANITARY SUNDAY.

DR. W. S. RANKIN,
Secretary State Board of Health.

MY DEAR DOCTOR:—In response to your request that I write you a short letter for the forthcoming issue of the Bulletin, making a few suggestions as to the subject for the ministers to preach about on "Sanitary Sunday," I would say:

As our Savior has been known through the ages as the Great Physician, ministering to the diseased body as well as to the sin-sick soul, it seems eminently proper that His special representatives on earth should lend their aid to the same cause. In our Christian country the minister of the gospel is nearly always an influential leader of his people, and his responsibility for making them better and happier and generally more effective for good is correspondingly great.

The sanitary Code of Moses, who wrought under the immediate inspiration of the Almighty, remains to this day a masterpiece. Texts will be found there as well as in the words of our Savior.

Health is not only wealth and happiness, but it is goodness or is promotion of goodness, and the lack of it unquestionably makes right living harder. Bad temper, with its expression in fault-finding, the unkind remark, the sharp retort, and in many other manifestations directly contrary to the spirit of love, which is the essence of our religion, is in a large proportion of cases the result of ill health. We have all known the dyspeptic and the "man with a liver." *Per contra*, with some exceptions, it is the healthy person who radiates cheerfulness and the sunshine that brightens our lives. The sick man is more than likely pessimistic, the well optimistic; and it is the optimists who are more potent in all forward and upward movements.

Sickness means care, anxiety, expense, and interference with the work and pleasure of the family. To get sick, therefore, when the attack could have been prevented by taking a little thought and trouble, is selfish. No matter how reckless a person may be as to himself, he has no right to impose this burden on his friends. Nothing is more plainly taught in the Scriptures than obedience to law as one of our duties to God as well as to our fellowmen. Health laws and regulations—as, for instance, in quarantine—are sometimes irksome and very trying to the patience. But our duty to our neighbor plainly requires that they should be obeyed. The theme of our duty to our neighbor in relation to the spread of the communicable diseases, which includes our greatest physical enemy, tuberculosis, could be, with great propriety, much enlarged upon. The suffering, sorrow and death caused by ignorant carelessness and obstinacy in relation to this class of disease, as you well know, are incalculable. The people should be especially admonished in regard to their duty here, and should be urged to uphold the health officer in his work.

Cleanliness is next to Godliness. Cleanliness of the person and his surroundings, clean air, clean water, clean food, are not only preservatives of health, but helpful to moral purity. Purity of life is more important to health. O God make clean our hearts within us, is a prayer, not only for the spiritual man, but for the physical as well.

The minister should make it a point to announce that the Monthly Bulletin and other valuable literature bearing on health can be obtained of you merely for the asking, and urge his people not only to ask, but to "read, mark, learn and inwardly digest" the same.

The thought of thousands of God's ministers at the same time all over this glorious country of ours, lifting up their voices and their prayers in this cause of humanity, is inspiring. It is my earnest hope that they will not only on Sanitary Sunday, but at all times uphold your hands and in every way aid you in the great work you are commissioned to do and are doing for the people of our beloved State.

Sincerely yours,

RICHARD H. LEWIS.

ENDORSEMENTS FROM PROMINENT CHURCHMEN.

[NOTE.—These letters are replies to request from the Secretary of the State Board of Health to the undersigned church officials. It is regretted that several have not yet replied, and it is desired that ministers of denominations not here represented use their influence through their church paper to encourage the adoption of Sanitary Sunday in their respective denominations.]

ELON COLLEGE, N. C., March 24, 1910.

To the Ministers of the North Carolina and Virginia Christian Conference—Greeting:

The appeal which the State Board of Health and the Medical Society of North Carolina are making to the ministry of our State to observe April 24th as Sanitary Sunday is worthy and deserving the hearty co-operation of our ministry and laity. The facts set forth in this Bulletin will eminently qualify you to present this *vital* topic to your several congregations, and I trust that none of you will lose this large opportunity of abiding service to your people in particular and the public weal in general.

W. A. HARPER,
Pres. N. C. and Va. Christian Conference.

MARYHELP ABBEY,
BELMONT, N. C., March 24, 1910.

MY DEAR DOCTOR:—In reply to your favor of 23d. I would certainly have no objection, if all the Catholic priests in North Carolina would preach a sermon as outlined in your circular, April 24, 1910, although suitable instructions on this important subject are frequently given to the children in our parochial schools, as a duty they owe to God, themselves and their fellow-beings. The same is done in our Christian Mother Sodalities, etc.

Very sincerely yours,
LEO HAID, O. S. B.

WILMINGTON, N. C., March 25, 1910.

MY DEAR DOCTOR:—As a man, as a minister of the Methodist Episcopal Church, South, as the Presiding Elder of the Wilmington District of the North Carolina Annual Conference of that Church, I take great pleasure in giving my heartiest endorsement to every effort making by the Board of Health of North Carolina to improve the conditions by which the public health may be bettered.

As Secretary of the North Carolina Conference, I am sending to you a copy of the journal of the last session of the Conference. On pages 15 and 16 you will find the action of the Conference regarding

the question of public health, and on pages 114-116 you will find the names and post-office addresses of the preachers of the Conference. If you think proper, you may send them the literature of which you speak. I will appreciate it if you will send literature to those whose names I have checked, being the names of those who are at work in the bounds of the Wilmington District.

Wishing you and the Board the greatest possible measure of success in this very good work, I am,

Very truly yours,

W. L. CUNNINGGIM.

CHARLOTTE, N. C., March 25, 1910.

DEAR SIR:—Replying to yours of the 23d inst., will say that I am glad to note the special efforts being put forth by the State Board of Health against preventable diseases and in the interest generally of the health of the people of our State. I sincerely hope your efforts may receive the hearty co-operation of the ministry of all denominations and the secular as well as the religious press of the State. With such a climate and with such a people as ours, it is positively wrong not to wage a relentless war against preventable diseases.

Wishing you every success in your efforts, I am,

Yours truly,

W. C. DOWD.

ELON COLLEGE, N. C., March 25, 1910.

MY DEAR SIR:—I most heartily endorse your appeal for the prevention of disease and the preservation of the health of our people; and cheerfully recommend the plan you suggest of "Sanitary Sunday" (April 24, 1910) to the pastors of the Christian Church in North Carolina, and urge upon them their hearty co-operation with the State and medical officials. If this move can be made general it will in a few months mean much to our people.

Very sincerely,

JAMES L. FOSTER,
President Eastern N. C. Christian Conference and Supt. of the Christian Orphanage.

ELON COLLEGE, N. C., March 25, 1910.

DEAR SIR:—As President of the Western North Carolina Christian Conference, I wish to heartily endorse the campaign of the State Board of Health of North Carolina against the preventable causes of disease.

A part of this campaign is a request that each of the four thousand ministers in the State make Sunday, April 24, 1910, Sanitary

Sunday in their respective congregations. Such a service, if entered into heartily, would contribute largely towards the improvement of public health. I, therefore, urge all ministers of the Western North Carolina Christian Conference to co-operate heartily on this day in this humane movement.

L. I. Cox,
Pres. Western North Carolina Christian Conference.

Guilford College, N. C., March 26, 1910.

To All the Ministers of North Carolina Yearly Meeting of Friends:

Noting the appeal which is being made by our State Board of Health to the ministers of the gospel in our State, I desire to emphasize the importance of this appeal and to encourage our ministers to consider it, and to present the subject on the 24th of April wherever it may be practicable throughout the limits of our yearly meeting. What we need in the great fight against preventable diseases is co-operation and persistence. Let us unite with our fellow Christians in the way suggested by the State Board of Health and do all within our power to promote good health among the people of our State.

L. L. Hobbs,
Presiding Clerk of N. C. Yearly Meeting of Friends.

Lexington, N. C., March 26, 1910.

To the Ministry of the Evangelical Lutheran Synod of North Carolina.

Dear Brethren:—I heartily endorse the appeal of the State Board of Health for co-operation on the part of the ministry of the State with the State Government and the State Medical Society in a movement for the improvement of the public health. Certainly there is need for such a movement. The large and increasing number of deaths, the great amount of suffering, and other sad results due to the lack of information on sanitary laws and conditions are sufficient grounds for the movement. I conceive it to be our duty, as ministers of Christ, to use our influence in the pulpit and in the homes of the people in every way we can, not inconsistent with our calling, for the promotion of the health as well as the morals and religion of the people. If you cannot use Sunday, April 24th, for the presentation of this subject to your congregation, take some other Sunday.

V. Y. Boozer,
President of Synod.

LAWRENCEVILLE, VA., March 29, 1910.

MY DEAR DR. RANKIN:—Your letter has just reached me. I heartily endorse your undertaking; I think a "Health Sunday" will mean much to the State. You have my earnest prayers and hearty good wishes.

Faithfully yours,

ROBERT STRANGE.

RALEIGH, N. C., March 29, 1910.

DR. W. S. RANKIN,
Secretary State Board of Health.

MY DEAR DR. RANKIN:—I have been for several years much interested in the invaluable work done by our State Board of Health for the enlightenment of our people in regard to health and sanitation. Especially does it seem to me that every intelligent man and woman should be glad to co-operate in their efforts to combat those forms of deadly disease which are certainly preventable. I have, myself, in a small way, endeavored to co-operate in this good work by bringing the efforts of your Board to the attention of such as seemed ignorant of them.

Last Sunday night I took the opportunity offered by a large congregation of our colored people gathered to my service in the Chapel of St. Augustine's School to urge them to make themselves acquainted with the rules laid down in your monthly bulletins for guarding against tuberculosis.

I believe you will find many among the clergy of the Diocese who will gladly co-operate with you in this work, and I think nothing can be more becoming to them than thus to aid their people in an effort to rid our country of a pest which so greatly adds to the misery and wretchedness, especially of the poorer and more helpless classes of the community.

Our Lord did not think it beneath Him to care for and to cure physical ills. We may well follow where He leads.

Very truly yours,

JOS. BLOUNT CHESHIRE,
Bishop of North Carolina.

THE VALUE OF HUMAN LIFE—ECONOMIC VALUE.

E. WALTER SIKES, Ph.D., Professor of Political Economy, Wake Forest College.

The census-taker will soon be abroad in the land. Much valuable information will be secured and tabulated for publication. Among other things, there will be collected information concerning the wealth of the United States. A record will be made of the number and

value of horses, mules, sheep, and a multitude of other kinds of property. And when these reports shall have been gathered together, then the Census Director will issue a summary announcing the total wealth of the United States.

But will such a summary be correct? Will it include all that is valuable? Will it not necessarily leave out of consideration some of the greatest economic values that we possess? It will give the number of miles of railway and their value, but it will not give the number of navigable streams and their value. Do not the 60,000 miles of inland waterways constitute a portion of wealth as much as railroads? Do not the Ohio and the Mississippi rivers constitute wealth?

But the most flagrant omission will be concerning our greatest item of wealth. The census will give the number of men, women, and children, just as it does the number of horses, cows, and sheep; but it will not give their economic value in dollars and cents.

Man as a laboring animal possesses a value as truly as the horse. In times past he has been bought and sold like other animals. The price paid varied with the demand for the skill of the man sold. The whole system of slavery was based on property right in man. Civilization has abolished this kind of property, but the abolition of a property right does not destroy the property. The mortgage on the land may be lost or destroyed, but the land still remains. The abolition of slavery during the Civil War destroyed property rights, but not the property. The negro—not as a slave, but as a tenant—was still left to till the cotton-fields of the South. Freeing the slave did not make North Carolina poorer, for he remained to labor and to toil—though he may have become more or less efficient. Emancipation was not the great loss of the Civil War; the great loss was the destruction of so many able-bodied men. Chancellorsville and Gettysburg destroyed value, destroyed the best wealth the South had.

The greatest single item of wealth in America is the men, women, and children. Whatever destroys them or renders them inefficient makes us poorer, it matters not whether it be shot and shell or typhoid germs and hookworms.

Glanders among horses entails great economic loss; disease in general stunts the development and weakens the economic efficiency of useful animals. Will not disease entail a similar economic loss among men?

What is the economic value of a man? What is the value of the average person in America when expressed in dollars and cents?

Engel estimated that it cost $1,000 to raise a child to 20 years of age. Prof. Mayo Smith estimated that men and women between the ages of 15 and 45 averaged $1,000 in value. He said further, that every immigrant was certainly worth the value of a slave. So he figured that each immigrant was worth $875. Prof. Irving Fisher estimates that the average economic value of the inhabitants of the

United States is $2,900, and that the preventable deaths average in value $1,700. Or, to express it simply, man is an animal that costs from $1,000 to $1,500 to raise, and that produces in value about $3,000.

Now, to cripple or maim a man entails a greater economic loss than to cripple or maim a horse. A good horse that breaks his leg or contracts some distemper depreciates in value at once. So it is with men. It is poor economy to let a good horse go lame for lack of proper shoeing. It is just as poor economy for a country to let its men and women grow sick and die when it could have been prevented by a little care.

The vital assets, the average economic value of the people of the United States (according to 1907 census), amount to 85,500,000 people x $2,900, or $250,000,000,000. This is clearly the Nation's most valuable asset.

But this asset is not well cared for; this great resource is not conserved; there is needless waste just as there has been with our buffalo and forests. Every year, according to Professor Wilcox, 630,000 needlessly die of diseases that are preventable. Each of these lives was worth on an average $1,700; hence the total loss of value is 630,000 x $1,700, or $1,070,000,000.

Of the people of the United States 3,000,000 are always on the sick list. If 1,000,000 of these belong to the working people and average $500 a year, there ensues a loss of $500,000,000. Dr. Biggs says that the United States spends annually for sickness $1,500,000,000—a minimum estimate. Dr. Gould says the cost is $3,000,000,000, and that at least one-third of it is preventable.

These figures are large, but are they not reasonable? Are they not the cold-faced facts?

The Nation needs a Gifford Pinchot to conserve its natural resources. Does it not also need a Pinchot to conserve our vital assets and prevent needless waste?

The truest wealth the Nation possesses is found in ruddy faces of happy children, in the rich blood coursing the veins, in the happiness and good cheer that comes with healthy bodies.

THE VALUE OF HUMAN LIFE—HUMANITARIAN VALUE.

Geo. W. Lay, Rector of St. Mary's School, Raleigh.

To put a valuation on human life from the purely economic standpoint sounds strange to most people, and offends many. We have no right to consider human life from so low a standpoint only. The necessity of this particular consideration comes from the fact that most of us put no value on it at all. We do not take the same means

to secure human life in general that we take to preserve the lives of cows and hogs. When stated in this way, we see the necessity of doing at least as much to preserve and prolong the lives of human beings as we already do in the case of the lower animals which we value.

Let us, however, go to a higher plane, and consider the value of life from the humanitarian standpoint. One human life, from a purely economic standpoint, considered exactly as we would calculate the value of a cow, can never suggest to our minds the real value to friends or to the world of any individual life. Sentiment and love enter in.

The results of genius in every field are things that cannot be estimated in dollars and cents. Many an able soul has been prevented by poverty or lack of education from giving to the world the results of a genius that lay starved and dormant. In Gray's Elegy we read the sad story of those who were denied the right to enter the door of opportunity:

> Perhaps in this neglected spot is laid
> Some heart once pregnant with celestial fire;
> Hands, that the rod of empire might have sway'd,
> Or waked to ecstasy the living lyre.
>
> But Knowledge to their eyes her ample page,
> Rich with the spoils of time, did ne'er unroll;
> Chill Penury repress'd their noble rage,
> And froze the genial current of the soul.
>
> Full many a gem of purest ray serene
> The dark unfathom'd caves of ocean bear;
> Full many a flow'r is born to blush unseen,
> And waste its sweetness on the desert air.
>
> Some village Hampden, that with dauntless breast
> The little tyrant of his fields withstood;
> Some mute inglorious Milton here may rest,
> Some Cromwell guiltless of his country's blood.

But what shall we say of those to whom has been denied even the right to live; who could not grow to the outward stature of a man, with strength to draw the sword and win at least some little victory in the strife of men?

Suppose, for example, that Milton himself had died from some easily preventable disease before he wrote a line! Suppose that Beethoven, Shakespere, Raphael and countless others had been the victims of the crime of sanitary carelessness in their early years. We could not measure the loss in financial terms, but the world would have been poorer by not having the joy and inspiration that has

come from the work of all these great men. Among the millions of babies whom God created and placed in this world with high endowments there have been thousands who have given nothing to the world in which they had a right to live, because of a kind of murder that snuffed out their innocent lives, caused by the ignorance, the carelessness, the prejudices and the obstinacy of parents and municipal officials.

Even when a man has developed his powers and has himself learned to know, and has proved to the world, the genius that is in him, his life has been cut short, his work has been left unfinished, because an entirely preventable disease has been allowed to wreak havoc on countless victims.

Tuberculosis is an entirely preventable disease. We use every precaution in the best dairies to keep our cattle free from it; and yet how little do we do to check its ravages among mankind! This is what Dr. Huber says in his work on Consumption:

"It is with a very real sense of melancholy that one contemplates the long death-roll of those of the world's great men and women who have succumbed untimely to the tubercle bacillus, which is and has been through countless generations by far the most potent of all death-dealing agencies. Had it not been for this detestable parasite, Bastien le Page might have given us another Joan of Arc to feast our eyes upon; Rachel might for many years have continued to permeate the spirits of her audiences with the divine fire that was in her. Our Navy did well enough in the 1812 war, as all the world knows; but what a rip-roaring time there would have been if John Paul Jones had lived to take a hand in it. We might be reading more of Stephen Crane's splendid war stories; we might have had more of Robert Louis Stevenson's delicious lace-work; Schiller might have given us another "Song of the Bells"; we might have taken another "Sentimental Journey" with Laurence Sterne; Henry Cuyler Bunner might have continued to delight us, and to touch our hearts; John Keats might have given us another "Endymion." Had the tubercle bacillus permitted, Nevin might have vouchsafed us another "Rosary"; von Weber another "Euryanthe Overture"; Chopin might have dreamed another "First Polonaise"; and the tender flute-notes of Sidney Lanier might even now be heard. Marie Constantinova Bashkirtsev, Xavier Bichat, John Godman, René Théophile Hyacinthe Laënnec, Henry Purcell, John Sterling, Henry Timrod, Artemus Ward, Henry Kirk White, Henry David Thoreau, Baruch Spinoza, John Addington Symonds, Prosper Mérimée—such names as these are but a moiety among those of the world's nobility whose precious lives were cut off in their prime by the Great White Plague."

The real value of a human life is not so many thousands of dollars, the same for each one at a certain age, but is a variable quantity whose limit is the entire wealth of those who love that particular living person. If a little child is sick unto death, the poor man

will spend his dollars, and the millionaire his millions, to save this budding life. No price is so high, no valuation so extravagant that the loving parents will not give it all, if that will meet the demand and serve the end, when death strikes at one of their own.

And how shall we dare to attempt to put a money valuation on a mother's love? The little one may not be adding to the material wealth of the world; but is it, therefore, a useless thing until such time as it begins to earn a wage? Its very presence is a continual joy, its innocence a divinely spoken sermon, its smile an inspiration and a benediction.

We would do anything to preserve the lives of our own. Many things we ought to do, we fail to do, because we think of these things as having no bearing on our own selfish interests, and as only intended to preserve the lives dear to others. And yet if we neglect these duties, now well understood, we are partakers in the crime of municipal murder which is destroying unnecessarily seventy-two human lives in the United States every hour of every day. But let the selfish ones remember that, if we all do our full duty to preserve the lives of others, then our own dear ones will be preserved, and many tears and griefs will be prevented in the days to come.

Whosoever shall offend one of these little ones, it were better for him that a millstone were hanged about his neck and that he were drowned in the depths of the sea.

ECONOMIC ASPECT OF HEALTH.*

W. S. Rankin, Secretary State Board of Health, Raleigh, N. C.

Emerson's prophecy of forty years ago, "The first wealth is health," is just maturing to a present-day realization. Ex-President Eliot recently said: "So far as I have seen, there is one indispensable foundation for the satisfactions of life—health." Unfortunately for the weak and helpless, the well, while admitting the surpassing value of health, only begin to realize the force of their admission when they themselves have become weak and helpless through disease that is too often a curse for their own former inertia. Not until there is intelligent sympathy, sympathy based upon an understanding of the prevalence and preventability of disease, sympathy that expresses itself with the force of deeds rather than with the weakness of words, will the true value of health be realized. To assist in bringing about a better understanding of our opportunities and responsibilities for the public health, I wish to call your attention to several subdivisions of this very important subject.

*Address delivered before North Carolina Society for Study and Prevention of Tuberculosis, Greensboro, N. C., March 15, 1910.

THE PREVALENCE OF CERTAIN DISEASES.

Fortunately for us, the prevalence of disease is easily and authoritatively ascertained. Forty-eight per cent of the population of the United States is in what is known as the registration area. All deaths occurring in the registration area are recorded, tabulated, and published by the Bureau of the Census of the United States Government. These death statistics are collected under laws enacted for the purpose. Unless the laws are properly drawn up and enforced the Bureau of the Census will not accept the statistics. The point I wish to emphasize right here is the source of our information. Government statistics in regard to population are accepted without question. When the Government says the population of the United States is approximately 90,000,000, we all believe it. Now, identically the same bureau is responsible for the statements I am about to make regarding the prevalence of disease. It is, manifestly, inconsistent for any one to accept the figures of the bureau regarding population and refuse to accept figures from the same authority for the death rates. There is no higher or more reliable authority for death rates than the figures I am about to give. With a given death rate for any particular disease, we may calculate the total number of the population having the disease by knowing the proportion of recoveries and deaths for the disease as shown by the records of many large hospitals and cities, where a record of sickness as well as a record of deaths is kept.

So much risk to your patience in order to establish the reliability of the figures I am now ready to give you.

There are 1,500,000 deaths in the United States every year—one in every 60 of the population. There are, in addition to this, 3,000,000 people seriously ill the entire year. Of the 1,500,000 deaths 600,000 of them are preventable or postponable. Parenthetically, I ask, on condition that I shall later prove it, that you accept this last statement temporarily.

There are 150,000 deaths annually in the United States from consumption. About one-seventh of all deaths are due to consumption. Besides this enormous death rate there are 500,000 sick with this disease all the time in this country.

One-sixth of all children die under one year of age. One-third of all children die under five years of age. Eighty thousand children under two years of age die annually of intestinal or bowel troubles.

Thirty-five thousand people die annually in the United States from typhoid fever. Three hundred and fifty thousand others are sick on an average of six weeks from this disease.

Between 12,000 and 15,000 die annually in the United States from malaria, while from 1,500,000 to 3,000,000 others have the disease, and of those having the disease it is carefully calculated that at least one-quarter of their productive energy is destroyed.

Thirty thousand from diphtheria, twelve thousand from scarlet fever, and ten thousand from whooping-cough are buried in the United States every year.

In the opinion of every single investigator there are at least 2,000,000 cases of hookworm in the Southern States, and many districts have as high a percentage of infection as 30 to 50 per cent. While this disease kills only a very small percentage of its victims, its responsibility, *indirectly*, through the lowered resistance of its victims for their ultimate death makes it one of the greatest, if not the greatest factor, in running up the death rate of our Southern people.

Another great problem of preventive medicine is the social diseases. Experts on these diseases claim that there are in the United States 2,000,000 syphilitic, and 7,000,000 gonorrheal men. These two diseases are mainly responsible for race degeneracy and for the depopulation of a country. Thirty per cent of the patients in our insane asylums are there as a result of these two diseases. Syphilis and alcoholism contribute one-half the inmates of the asylums. Specialists claim that 70 per cent of sterility is clearly traceable to venereal disease of husband or wife.

Enough has been said, without further details, to show the exorbitant tax we are paying disease for our ignorance and indifference.

THE PREVENTABILITY OF THESE DISEASES.

Turning from this picture of despair, the record of the past, let us look upon a picture of hope, the opportunity of the future.

These diseases are almost wholly preventable. For more than twenty years the truth, clothed in the words of Pasteur, "It is in the power of man to cause all parasitic diseases to disappear from the world," has rested its responsibility upon man's indifference.

Is it true that the above-mentioned diseases are preventable? There are three answers to this question: The answer of opinion, the answer of science, and the answer of results. All these answers are confirmatory of each other; all are emphatic affirmatives. Every medical authority in the country assents to the preventability of these diseases. But this answer of opinion, even though it rests on long-continued study by experts, even though in every case the experts confirm one another, is not convincing enough to serve as the final answer to so important a question. Science answers, in the words of her beloved apostle, Pasteur, "It is in the power of man to cause all parasitic diseases to disappear from the world." However, we shall disregard the answer of opinion and science this evening. Reasons: first, because it is unfair to any mind to attempt to compel it by majorities; dogmatism is mental impoliteness. Second, the language of science—the language of the test tube, the microscope, the blood counter, etc.—is as out of place in a lecture before a popu-

lar audience as is a lecture in German or French. The third answer, the answer of results—the Great Teacher's "by their fruits ye shall know"—is the highest court of appeal for the decision of this important question. Fortunately, this court has answered this question many times, and answered in language whose meaning cannot be misconstrued. Let us look at some of these opinions, the answer of results in some of the many cases where preventable measures have been applied.

One may easily see results in the conquest of disease in the continually lengthening of the span of life, as shown by the Government statistics. The statistics of Geneva in the Sixteenth Century show the average duration of life at that time to have been 21.2 years. From this it has increased to 44 years, the present average duration of life. During the last century many countries have increased the average duration of life at different rates. England and Wales at 8.2 years per century; France at 6.8 years per century; Prussia at 18 years per century; Denmark at 8.1 years per century; Sweden at 12.7 years per century. During the years from 1890 to 1900 there was an increase in the average duration of life in the United States of 4 years. All of these changes in the average duration of life are directly traceable to sanitary changes. The duration of life in India, where sanitation is unknown, is the same to-day as it was in 1880. For thirty years the average duration of life in that country has remained unchanged, and is only 23 years. So much for the effect of sanitary laws on the duration of life.

In 1887, when the French were trying to dig the Panama Canal, there was an annual death rate in the Canal Zone of 100 out of every 1,000 inhabitants; one out of every ten died every year. When the United States took sanitary control in 1905, there was a death rate of 65 per 1,000. In four years Colonel Gorgas has, mainly by killing mosquitoes, reduced this mortality to 25 per 1,000, and for this country of 120,000 inhabitants this means 4,800 lives saved every year.

Take a few of many examples of individual diseases: Typhoid fever is conveyed by impure water in from 40 per cent to 90 per cent of the cases; by flies in from 20 per cent to 30 per cent of the cases; by raw foods—usually milk—that has been handled by some one who has the disease in its early stages, or who has recovered from the disease, but still carries the poison, or who is in contact with a case of the disease. The relation of water to the disease is beautifully shown in the histories of towns that change from an impure, unfiltered water, to a pure, filtered supply. Filtration in ten cities of the State of New York resulted in an average reduction of 56 per cent of the typhoid death rate, and a minimum reduction of 44 per cent and a maximum of 80 per cent. Munich's filter plant gave a reduction of 96 per cent of the previous typhoid death rate, saving thereby 702 lives a year and preventing 7,020 cases of typhoid fever in that city

of 250,000 population. Examples might be continued if I were not afraid of exhausting your patience. The relation of flies to the disease is seen in the difference between the record of the occurrence of typhoid fever among the American soldiers in the Spanish-American War and the Japanese soldiers in the Japanese-Russian War. When the United States began preparing for war with Spain she concentrated her troops at Chickamauga. Some of the recruits arrived at the camp in the first stages of typhoid. While still up and going about, they deposited their intestinal contents containing the germs of typhoid fever in the opened latrines which were close to their mess-halls. Flies feasted on the contents of the latrines between meals, and on the soldiers' food during meal hours. In this way the germs were carried from the infected stools of the sick through the food to the systems of the well. Proof of every detail of this statement is clear, but time forbids me to deal in detail where general truths are so many and so far-reaching in their importance.

Suffice it to say that the American Army, numbering 107,000, had 20,100 cases of typhoid, and 1,500 deaths. Nearly one-fifth of the soldiers had the disease; 1 out of every 68 died from it. The mortality from typhoid was nearly five times greater than the mortality of the Spanish bullets. The Japanese Army of 1,200,000 were as careful in killing flies and screening their food from them as they were in finding pure water to drink. Results: only 310 deaths—one-fifth as many deaths in an army almost twelve times as large as the American Army. We lost 1 out of 68 from typhoid; they lost 1 out of 4,000. One army took no precautions against flies, the other did. This disease has had its death rate reduced 44 per cent in the United States since 1880.

Take malaria as a preventable disease: Science says no mosquitoes, no malaria. As the life of a mosquito is very short—probably not more than an average of three months—all that is necessary to kill them is to prevent reproduction, breeding. To do this, drain stagnant pools; if you cannot drain them put oil (1 ounce to every 15 square feet of surface) on them every two weeks; if unable to drain or cover with oil, stock the reservoir with fish, and no mosquitoes can breed. In addition, have no heavy undergrowth within two hundred yards of the residence. These measures applied in Ismalia, a town of 8,000 inhabitants, whose very existence was threatened, completely rid the town of the disease.

Tuberculosis has been decreased in its death rate from 10 per cent to 50 per cent in different places since 1880; diphtheria, 80 per cent. Examples could easily be continued, but I must hasten.

DIFFERENCE BETWEEN COST OF PREVALENCE AND COST OF PREVENTION.

The cost of disease is to be obtained by finding the value of the average life, which disease destroys, and then multiply this figure by the number of lives lost. Such an estimate would leave out

doctors' bills, druggists' bills, undertakers' bills, time lost from sickness, and the inestimable cost of suffering and sorrow. Such an estimate would, to this extent, be too low, but the figure arrived at will be large enough to stagger the imagination even then.

Fifty years ago there was a monetary value placed on a life that could produce only the cheapest form of labor— unskilled labor—and a life so backward in development as to be considered unworthy of citizenship. Such a life was bought and sold at from $750 to $1,500. The Government values the newly landed immigrant, the man without patriotism, without even our language, at $875. The tax that he will pay, and that is paid on the property that he will produce, will amount to the interest on a principal of $875. Voluminous statistics, collected by departments of commerce and labor, show, in the opinion of experts on the subject of political economy, that the average American citizen leaves the world $1,700 better off than it was when he arrived in it. That is to say, the average American produces $1,700 more than he consumes. This is a figure accepted by expert statisticians as to the value of the average American life. I will say right here that this is Irving Fisher's lowest figure.

Multiplying the 85,500,000 inhabitants of the United States by $1,700, the value of each, we find that the vital assets of our country are $145,350,000,000, while all the other wealth—that is, our material wealth—amounts to $107,000,000,000. The loss from preventable disease would be 600,000 preventable deaths multiplied by $1,700, the value of each, amounting to $1,020,000,000 a year.

Our loss from tuberculosis per year amounts to 150,000 deaths multiplied by $1,700, or $250,000,000, to prevent which we are now spending, all told, in the United States about $8,000,000. The work against tuberculosis since 1880, feeble and desultory as it has been, involving a total expenditure of not over (I think we are very conservative to say) $50,000,000, has reduced the disease in some places 49 per cent, which, if general, would mean a saving each year of 73,500 lives, with a monetary value of $124,950,000.

The tremendous death rate of young children, calculated on the same basis as tuberculosis, means a loss of not less than $130,000,000 life assets to our country. In this connection we recall that in Huddersfield, England, where the average annual infant death rate for ten years was 310, that a campaign of education of mothers in regard to infant feeding reduced the average by 98 deaths to 212. The cost of the campaign was $2,000; 98 children were saved. The average child, therefore, costs $20.40 to save its life; average value of life $1,700.

Take another example. The ten cities of New York State that reduced their typhoid death rate 56 per cent by filtering their water, save, each year, 184 lives. Each of these at $1,700 amounts to $312,650 saved. The cost of filtration, including interest on money invested in plants, repairs, wear and tear, attendance and all, does not exceed

$120,000 a year. It therefore cost $120,000 to save $312,650 worth of property—vital assets—a net saving of $192,650. This figure is the lowest possible estimate. It leaves out lives saved by filtration from other diseases, and Hazen, one of the best American authorities, claims that where one typhoid death is prevented by filtration, two deaths from other diseases are prevented. It takes no account of the fact that 90 per cent of typhoid deaths are adults with an average value of $5,000 instead of $1,700. It takes no account of doctors', druggists' and undertakers' bills, time lost from sickness, suffering and sorrow.

Consider again the cost and returns of the Panama Canal Zone sanitation. As I have already pointed out, 4,800 lives are saved. These, at $1,700 per life, amount to a saving in vital assets of $8,160,000, which costs about $120,000 a year for sanitation.

Take the financial gain, through the control of yellow fever. Gen. Leonard Wood says this one discovery "saves the commercial interests of the world a greater financial loss in each year than the cost of the entire Cuban War." Through this discovery the city of Havana alone is saving over a million dollars in vital assets every year, not to mention its profits, through noninterference with its commerce, and the savings from other needless sick expenses. This is costing the city not over $75,000 a year.

Malaria occurring in the towns of Ismalia and Klang and Port Swethingham has been eradicated at about 25 cents to 50 cents per capita tax a year. Before this was done the towns were rapidly becoming uninhabitable.

Specific examples of prevention could be cited for hours, but I must hasten to the next section with just this statement: In the face of all this positive evidence not one iota of evidence in the form of actual tests, such as I have cited you, exist to the effect that these diseases are not prevented when the remedies prescribed by science are applied. In every case prevention costs less than one-twentieth the cost of prevalence, and in estimating the cost of prevalence only the life value is used, the losses through doctors', druggists', and undertakers' bills, the suffering and sorrow of it all, are not included.

WHAT WE ARE DOING AND SHOULD DO FOR THE PROTECTION OF HEALTH.

Thanks to the wisdom and public-spirited devotion of the former efficient secretary, Richard H. Lewis, our State has a magnificent foundation laid on which the public health interests are to stand. Our public-health laws are wise, they are just, they are comprehensive. But the law is but the blazed trail, along which official machinery under the impelling power of public sentiment must find its way to the eradication of disease, to the salvation of life. At present the official machinery is inadequate, and the feeble power propelling it, public sentiment, contrasts sadly in this electric age with its need.

The great need of public health is education. It is education that makes public sentiment, and public sentiment is government. Money, enthusiasm, good intentions may enact law, but law is dead, law of the letter only, until public sentiment gives it life. To carry on this educational work, thereby manufacturing public sentiment of which law is born, and by which law is enforced, $12,500 additional public-health appropriation should be made. This additional appropriation would supply an assistant secretary who would relieve the secretary of the routine office work, so that nine-tenths of his time could be devoted to this educational work. It would put a State lecturer, properly equipped, in the field, and this would have a tremendous educational effect. It would greatly enhance the value of the Laboratory of Hygiene.

Is this additional appropriation needed? North Carolina's health is as good as the average, but no better. If this be true, there are 12,000 preventable deaths in this State every year. Suppose the additional appropriation only saved 100 lives, instead of from 300 to 600 that it would very probably save, this is only $250 for a life. Is that too much? Too much, when experts on the monetary value of life estimate it at $1,700? Too much when it may be your own life? Too much, when ninety-five times out of a hundred it will be the life of your good neighbor, your child, or your little grandchild?

Oh, it is needed, some one says, but the State cannot afford it. Cannot afford to spend one cent and two mills on each of her citizens to protect—not their property—but their health and life? Cannot afford to tax every $100 worth of property one-half cent, every $1,000 five cents, for health? Cannot afford this, but can afford the loss of at least 10,000 lives from preventable diseases, which lives at the lowest financial figure, $1,700, would amount to $17,000,000. Cannot afford an additional health appropriation of $12,500 when for 60 cases of preventable blindness in the blind school at Raleigh she spends $13,200 a year, and leaves 40 to 60 sightless children to the care of others. Cannot afford it, when a large part of the $315,000 for the maintenance of insane asylums would be unnecessary if preventable diseases were prevented. North Carolina is the fourteenth State in population, the twenty-fifth State in public-health appropriation. We are not only failing in the discharge of our responsibility for the safeguarding of our most precious and fundamental possession, but we are falling behind the pace set by other States. Let's value the life of a North Carolinian as high as other States value the lives of their citizens. Let's protect it as adequately.

SCRIPTURAL REFERENCES TO HEALTH—SUGGESTIVE TEXTS.

Rev. J. W. Lynch, Durham, N. C.

"In him was life."—John 1:4.

"I am come that they might have life, and that they might have it more abundantly."—John 10:10.

"Who healeth all thy diseases."—Ps. 103:3.

"Gave them power and authority to cure diseases * * * sent them to preach the kingdom of God and to heal the sick."—Luke 9:1, 2.

"Is there no balm in Gilead; is there no physician there? why then is not the health of the daughter of my people recovered?"—Jer. 8:22.

"I will take sickness away from the midst of thee."—Ex. 23:25.

"He shall deliver thee from the snare of the fowler, and from the noisome pestilence."—Ps. 91:3.

"Come out of her, my people, that ye be not partakers of her sins, and that ye receive not of her plagues."—Rev. 18:4.

"Heal all manner of sickness."—Matt. 4:23.

"To another the gifts of healing."—I Cor. 12:9.

"Sowing health among the nations."—Ps. 67:2.

"What is a man profited, if he shall gain the whole world and lose his own life?"—Matt. 16:26.

"We looked for a time of health, and behold trouble."—Jer. 8:15.

"With healing in his wings."—Mal. 4:2.

"They that be sick need a physician."—Matt. 9:12.

"Luke the beloved physician."—Col. 4:14.

"Whatsoever a man soweth that shall he also reap."—Gal. 6:7.

"Keep thyself pure."—I Tim. 5:22.

"Uncleanness with greediness."—Eph. 4:19.

"That thou mayest prosper and be in health."—III John 1.

"Art thou in health, my brother?"—II Sam. 20:9.

"Then shall thy light break forth in the morning, and thy health shall spring forth speedily."—Isa. 58:8.

"The diseased have ye not strengthened, neither have ye healed that which was sick."—Ezek. 34:4.

"All his days also he eateth in darkness, and he hath much sorrow and wrath with his sickness."—Eccl. 5:17.

"Made him sick with bottles of wine."—Hos. 7:5.

"Gave them * * * power to cure diseases."—Luke 9:1.

"Because of the infirmity of your flesh: for ye have yielded your members servants to uncleanness."—Rom. 6:19.

"Who shall deliver me from the body of this death?"—Rom. 7:24.

"Bodily exercise profiteth somewhat."—I Tim. 4:8.

JESUS AND SICKNESS.

J. W. Bailey, Raleigh, N. C.

Jesus was never sick. The records of his life report that he was weary, but there is no intimation that he was sick. His great soul tabernacled for thirty-three years in a body as liable to disease as any other flesh; and His lot was cast in a time and amongst a people who, although bred for ages under sanitary law, had so far suffered ceremonial cleanness to overshadow personal cleanliness that to live amongst them was to constantly run the risk of contagion. His kin and companions were of the poorer classes, and His ministry was to the outcast; and these sections in any community offer a larger liability to contagion and infection than any other of the normal groups. But he maintained His intense activity in perfect health.

This is the Master's tribute to the value of health; this is His sermon on sanitation and prevention; this His message on the demand for health of the body; this His teaching on the care of the body. A well body is bond enough upon the spirit, to say nothing of the galling chains of a diseased system! Let the body be well, that the mind and the spirit may soar in freedom.

It does not appear that Jesus had a theory of the cause of sickness. He certainly did not hold that sin was necessarily its cause. But probably the most outstanding feature of His three years' public ministry was His sympathy for the sick. Whether impotent man or leper, blind or deaf, paralytic, epileptic or victim of fever, so greatly did their afflictions appeal to Him that He violated the mature plans of His ministry in order that He might relieve them. He must heal them, even though He must endeavor to hide the fact. In His time the people said that the healing power "went out from Him"—much as a powerful sense of sympathy is felt coming out upon its object before a word or gesture intimates anything of the kind, comes as it were involuntarily; so powerful was His will to heal. And in time the race gave Him a new name—not the Christ, but the Great Physician; the cure not only of souls, but of bodies.

There is superficial reasoning that only those who have similarly suffered can genuinely sympathize with the suffering. But the profounder truth is, that strength can best understand weakness because it knows what strength is, and, therefore, must respond to weakness. Perfect health looking upon the wracked body is touched with a deeper pity than could be possible from a lower point of view. He, who never knew the horror of leprosy, knew the full joy of wholesome flesh; He, who never knew the helpless gropings of the blind, knew the full beauty of God's world; He, who never burned with fever, knew the full joy of an evenly-tempered body; and He who never knew the heart-breaking impotence of the paralytic

or the terrors of the epileptic, knew in full degree the gladness of ready limbs and responsive nerves; and, because He did know these things, the sick and the broken made upon Him a more compelling demand than all others of His time. He knew what sickness must be because He, alone, knew what perfect health is. His own mother He could disown for His ministry's sake; but Peter's wife's mother He must heal, because to Him sickness was so pitiful—even though to heal her broke in upon His true ministry. He sacrificed His mother for His ministry, but He sacrificed His ministry for another's sick mother.

And when He came to sum up the meaning of obedience to Himself and to fix the objective test of His work in the world, He identified Himself with the sick of all the ages, saying, "I was sick and ye visited me." You cannot love Him without loving the sick and endeavoring to heal them. The true physician is the best Christian; and the best Christian must be a physician.

Jesus means that there shall be no sickness in His world, and His nearest disciple catches the vision of the new order of creation, saying, "Nor pain, any more!" He, Himself, gave the race an example of perfect health. Busy with all Eternity's business, He took time to care for His body. And He, moving now amongst men in all their engagements of good, moves so earnestly and so gladly with none as with those who dedicate their lives to the prevention of sickness, the perfection of the body and the relief of all those victims of error who are cut off from the fullness of strength, which so to be, independent of the pains that may accompany it, is the curse of curses.

SIN AND DISEASE.

By Dr. George M. Gould. *Extract by* F. A. Olds, *Raleigh, N. C.*

Never has so much attention been given to the public health as at present, and certainly no State in the South is giving more of earnest effort to this great question than North Carolina. There is a demand for the best thought, the best care and the highest promotion of knowledge as to those conditions which make for health. One of the most striking books of its kind ever written is that with the title "Borderland Studies," being really lectures and essays on medical subjects by Dr. George M. Gould. One of the chapters in this work is upon disease and sin. In the earlier ages it was held as an article of the firmest belief that disease was due to sin, and, indeed, the Bible itself bears out this idea, for under the Mosaic dispensation the rules of health were impressed as strongly upon the

Hebrews as were the moral laws, for it was realized that God demanded obedience to the laws of health as much as to others, and that violations of the former brought about their own punishment, as in the case of moral laws.

The relationship of sin and disease has been recognized by all the philosophers, and one of these speaks of disease as punishment by God for the sins of the world. Not all the sick have been sinners—in fact, far from it—but the innocent suffer for the sins of the guilty, and when a tracing of causes is made it is found that the lines lead back to what in a broad way is spoken of as sin.

Dr. Gould says that the wise people of the world—philosophers and prophets, and leaders of men to better living—have been those who saw how far-reaching and subtle were the lines and laws of causes running back from disease and untimely death to the sources of ignorance, selfishness and wrongdoing; for this is the text of all prophecy, the burden of all tragedy, the plot of all literature, and is the very heart of medicine. The perpetuation and strengthening of the race is the very first concern of life, and really the care of the child demands the attention and life-work of the parents, and this it is which has brought about the one wife and the one husband, and has made the chaste life one of the first of necessities physically as well as morally, and the breaking of the lines of that sort of a life has brought about the spread of disease which has affected almost every part of the world, coming from the warmer climates, lowering vitality and morals at the same time and affecting family life, from the highest to the lowest, to a painful degree. Thus it has come about that a violation of one of the ten commandments—one of the shortest of them all, and yet one of the most positive and direct—is poisoning and undermining the very fountain of life and gradually diminishing the National health, affecting the innocent and destroying alike mind, body and soul; and yet the blight of the disease which follows the breaking of this commandment, which requires continence, has not only spread its direct effect, but has brought about complications which add to the fatality, the danger of other diseases, such as pleurisy, meningitis and peritonitis, but has ruined the lives of the innocent, so that most truly may it be said of a disease due particularly to sin, that none so terribly visits the sins of the fathers upon the children, vastly increasing the mortality rate and the drinking of intoxicating liquors, causing vast financial loss, checking reform and true progress and making it necessary to curb something about which there are generally whispers and not plain talk, in some strenuous fashion.

The Bible is very strict in its demand for moderation, that is, for temperance in all things, and so liquor drinking as a disease of sin is another thing which is lowering the tone of a large part of the world, and physicians have to face the great question of preventing the

numerous evils of alcoholism. Some of the great thinkers declare their support of the idea of direct punishment by law of drunkenness, which levies so vast a tax not only upon man in point of moral, mental and physical wellbeing, but by making paupers, places the cost of their maintenance upon the rest of the people. Dr. Gould inclines to the belief that almost all poverty in this country is due to immoral character and conduct.

The Bible sets before the people of the world the free and open life. The Old Testament was written for a race which lived out-of-doors. It was a preachment of sunshine and the right kind of labor and living, while now, in what we are pleased to call civilization, of the ninety millions of people in the United States over ten millions will die of some form of tuberculosis, and this causes the deaths of a third of those who die between the age of fifteen and sixty; one of the diseases brought about by the wrong kind of living being pneumonia, which is now killing more people than pulmonary tuberculosis. So that it may really be broadly stated that half our entire mortality is due to diseases of the lungs. The rage for money, luxury and fast life in the great cities, the deadly tenement houses, wrong living in many ways, all combine to make it safe to say that to sin this awful mortality is largely chargeable. And yet it is safe to say that 75 per cent of these deaths and this illness is preventable. God has called upon us to develop that noblest of all temples, the human body, and for thousands of years the open and free life brought this about, while now men and women are shut up in houses and take up occupations which keep them from exercise and proper air and light, while there is open land and opportunity for them all. Civilization can do its highest work by stopping overcrowding, indoor life, nonventilation and nonexercise, and developing vitality and strength; and here is where medical skill is doing wonderful work in the way of development. Four hundred years ago, before there was instruction such as we have to-day, the average length of human life was under 20 years, while to-day it is over 40 years, and in the past 30 years has been lengthened by 6 years. The fearful mortality during the Middle Ages and up to recent times was due to bad government, war, famine, plague, yellow fever, malaria and smallpox. As has been shown at San Francisco, by carrying out the public as well as moral duty of cleanliness the plague, once the world's greatest scourge, was quickly stamped out. Sickness and death cause a loss to the United States each year of over a billion dollars, a figure so vast as to shock the mind.

PREVENTABLE BLINDNESS.

The following is taken from an article recently published by Mr. John E. Ray, Principal, State School for the Blind and the Deaf. Later we hope to publish the entire article:

"There are enrolled the present session in the North Carolina State School for the Blind and Deaf 268 blind children (besides 100 deaf children). At least one-fourth of these need never have been blind, and would not have been, if proper preventive remedies had been employed within twenty-four hours after the birth of the child. Gentle reader, do you realize that there are from *sixty-five to ninety* children in this school doomed to a life of darkness and a handicap in the race for bread-winning all their days—some of them to lead the lives of helpless dependents, if not abject paupers? And there are still at least 128 more blind children in the State who have not been enrolled in our school at all. This will make the figures the more appalling—130 blind children in North Carolina whose sight might have been preserved with a little care exercised, and almost without expense!

"Is it not high time that the legal and medical authorities of our State were taking steps to prevent this condition of affairs? In the meantime will not the parents of *all infants* see to it that immediately after the birth the eyes shall be thoroughly washed and then have one drop of the solution of no greater strength than one per cent of silver nitrate put in each eye not later than twenty-four hours after birth? This is a precaution and preventive which, if properly applied, is harmless and may prevent *your child* from becoming blind.

"And let every physician and midwife in North Carolina supply himself or herself with this preparation and attend to its proper administration in every case. *Care should be taken that the solution shall not be stronger than* ONE PER CENT.

"There is yet one other phase of this situation. It costs at least $200 annually to properly teach a blind child and not less than $20 to clothe him. For 90 blind children this aggregates $19,800 annually; and for 130 children $28,600 annually. What a saving to the State this would be! And in the course of the ten years covered by our curriculum this would amount to a saving to the State of $286,000. Is this worth considering?"

A MILLION IS BID.

By James W. Reilly.

[Note.—A Mexican of great wealth who has fallen prey to leprosy, offers a million dollars to any one who can restore him to health. A wealthy New York business man, who has been stricken blind from overwork, offers his entire fortune of one million dollars to whoever restores his sight.—*Exchange.*]

Who'll give his health for a million in gold?
Don't all speak at once. See the million I hold?
What is wanted is health—rugged, cheery and strong.
(No aches, no ills will be taken along.)
Have all heard my bid of a million outright?
Give me your health, and I'll give you my might!
A million is bid!
Who of health would be rid?

Then who'll give his sight for a million of gold?
First come, first taken—the motto we hold!
Flashing bright eyes that can see light of day!
A million we offer—it's pretty high pay!
Here's wealth for two eyes!
Who'll swap for this prize?
A million is bid!
Who of sight would be rid?

Then who'll say he's poor, if he'll not sell outright
His health for a million of gold, or his sight?
'Tis a test of their value we're putting you to,
And we see that you're holding them priceless, these two—
They're life's precious jewels, your health and your sight,
For with either one gone, what matters your might?
A million is bid!
Who of these would be rid?

THE TRUE EXPERIENCES OF A CONSUMPTIVE.

[Through the courtesy of *The Independent* the following article is reproduced. It is especially interesting as representing the experiences and the point of view of the intelligent patient himself.]

It is wholly impossible for the great public of our country, the healthy, prosperous, respectable majority of our citizens, to realize what it means to be a poor consumptive. The sordid and recurring cares of poverty are bad enough; the torture of physical weakness

and the fear of a lingering death are worse; the persecution arising from an almost venomous dread of the disease is the worst of all; but a combination of the three is a situation whose concentrated horrors can never be described in words. Being one of the few who have tasted all the bitterness of this ordeal, and have survived it, I venture to tell my story in the hope that by so doing I may, in some manner, have the privilege of contributing my mite toward the righting of an intolerable wrong. I believe that if the facts were generally understood something might be done.

I was just twenty-two years of age when the first symptoms of tubercular mischief manifested themselves in my case. I shall never forget the wild terror that seized me when, seated in my office one wintry afternoon, the blood burst from my throat, and I knew that my blackest fears had been well founded—I was a consumptive. For more than a year I had been apprehensive; but five physicians had assured me that my lungs were intact, while my friends had foolishly concealed their own doubts concerning the matter, and this had lulled me into inaction. The medical men had all known that I was diseased. One of them, who was a friend of mine, simply lacked the courage to tell me the truth. The others were strangers, and could not possibly have had this motive. That they realized my true condition is shown by the fact that they gave me remedies supposed to be good for tuberculosis, though this significant fact was concealed from me at the time.

Forthwith I resigned my position, and, acting upon the advice of physicians and friends, resolved to leave St. Louis, which was my home.

But here arose a difficulty. No two authorities could agree on what was the best place for me to go. Finally, after learning all I could from inquiry, I made up my mind to try Texas. I could not enter a sanatorium, because I could not pay the price required in these places, nearly all of which are conducted on commercial principles. And so I made my way to B——, a little town in the mountains of the Lone Star State, forty miles from the nearest railway. And it was here that I experienced my first taste of phthisiphobia—that dread of tuberculosis that has since then arisen to the height of a public panic. My landlady was a German. Taking it for granted that I knew nothing of her language, she spent the greater part of the first two days "cussing me out" in her native tongue, and expressing the firm conviction that I could not live a month—all within my hearing. That was delicious, for there was no other boarding-house in the town, and the river had swollen behind me so that I could not get away.

Finally they told me that I must leave. I was at that time in the third stage of tuberculosis, for my illness had been allowed to progress until my chances of recovery were nil. A thousand miles from home, in a God-forgotten hole in the Texas mountains, without

friends, poor, dying, and about to be thrown into the street, I was scarcely to be envied. Moreover, the story of my condition had got out, and no one else would have me. My plight was desperate.

Fortunately for myself, I had, even at that early age, mastered one or two of the essential principles of human nature. There was a young lady in the family, a kind, sweet-natured girl, who evidently pitied me. I succeeded in getting her alone one afternoon and made an appeal to her sympathy. She took my part with her parents, and I was allowed to remain till the river subsided. When I left, six weeks later, the old lady deducted three dollars from my bill in recognition of the fact that I had been of so little trouble to them. I mention this to show that the persecution that has followed me through nine years of sickness has not, in any way, been due to my own uncleanliness or want of consideration for those about me.

I left B—— on a cold, raw day in April, and rode forty miles across the mountains, over the roughest road I have ever felt. When I reached the railway my lungs were bleeding profusely and my temperature stood at 105 degrees. How I survived that ordeal I know not. But I did survive it, and the next morning I reached San Antonio. Here I succeeded, by rare good fortune, in getting a good boarding-house. But a few days later I had the pleasure of lying in my room and overhearing a conversation between my landlady and a professional nurse, wherein the latter was trying to persuade the former to throw me out. She succeeded. It was carnival week, and everything was full to overflowing, and I was so feeble that it was only by tremendous effort of will that I could walk; but I managed to drag myself around the city looking for accommodations. Everywhere I was refused, or the price asked was more than I could pay, for poverty has, from the very first, been a close ally to the disease. At last, when I was about to despair, my landlady took pity on me, and consented to keep me till I could make arrangements to leave.

As soon as I could arrange for transportation, I left Texas for Michigan; for it was now mid-summer, and I wanted a cool climate. The change held me up for a couple of months, and saved my life. But everywhere I went I found the people in deadly terror of "catching consumption," as they called it. Some of these foolish folks went to such an extreme that they were afraid to pass me, or to talk with me; and if forced to do so would sit looking at me as if I were an infernal machine with a lighted fuse. How delightful it all was.

From Michigan I went to Kentucky, and became worse. My death was expected in a few weeks; and all preparations made for the funeral, such as the choosing of pall-bearers, and so forth. A premature report of the event came out, and my parents received eight letters of condolence, which I had the pleasure of reading.

But my old-time aversion to being dead came to my rescue; and I made up my mind to try Florida. I succeeded in getting there alive; but hardly had I got well settled when I was requested to leave my boarding-house, on account of my affliction. My friends, however, took my part, and the landlady was compelled to permit me to remain, or to lose six other boarders. But I was tired of this absurd persecution; and so, as soon as I could, I scraped some money together and bought a small place, with a grove and a fairly good house on it. That was directly after the great freeze of 1895, and property was selling for a song.

On this place I lived for five years, a mile and a half from the little town of Eustis. I was alone during the greater part of that period. As no one wanted to board me, and as I could not afford to pay much, in any event, I was compelled to do my own cooking, and all of my other work. I was socially ostracised—for the same old reason—and utterly forlorn and melancholy. For months at a time I was in daily, almost hourly, fear of death from hemorrhage, for at times the bleeding from my lungs was the most profuse I have ever seen or known. Still, amid a thousand discomforts, heartbreaks, disappointments and hardships, I was slowly improving. I had a little garden, in which I worked when I could, and that, more than anything else, kept me from losing my mind. My chief malady was complicated with a large number of minor ones; and I was naturally handicapped by having one of the frailest physiques I have ever seen, being six feet three in height, measuring only sixteen inches across the chest. Words utterly fail to do justice to the horribleness of my situation.

After five years of invalidism I seemed to be out of danger. Then I was forced to go through a fearful ordeal of a nature not necessary here to describe, and as a consequence of this I went down with nervous prostration, and was almost in extremis for eighteen months. When I at last got over this, an accident occurred that set me back for another eight months; and just when I was once more upon my feet a runaway team put me out of commission for a year, and it seemed that I should certainly die of very despair. But I recovered once more, and got so much better that I went to a cheap local hotel to board. Alas for the vanity of human wishes! There was a silly old man among the boarders who knew that I was a consumptive. He was afraid that a fly might get a germ from some part of my person, light upon his hand, drop a deadly thing into some chance abrasion, and "give consumption" to him! This may seem funny—but when I was ordered from the hotel as a consequence of it, it did not so appeal to me.

After this misadventure I secured a room with some poor but kindly folk who, being old-fashioned, did not believe consumption "catching." They were the only people in the town who would have me. Then, for the sum of one dollar a day, I was granted the

precious privilege of going to a nearby boarding-house and having my food passed out to me on a tray, at the kitchen door, so that I could carry it off to my cell and eat it in solitary grandeur. I soon discovered that my landlady had a special knife, fork and plate, and a special tray covered with a special napkin, kept on a special table in a special corner of the kitchen, and that these utensils were washed in a special dishpan, with a special rag and soap, and dried with a special towel, all for my most especial benefit—to keep the deadly contagion from spreading. O tempora, O mores! Could the force of human folly further go? And yet this silly woman was no sillier than many I have met.

Disgusted with such incredible foolishness, I left the place, and again began cooking for myself. After nine years of this kind of thing I am so far convalescent that I can now conceal my malady; but even so recently as last spring I was repeatedly refused lodging at Saint Petersburg, Fla., because I had a little cough. I met one poor fellow there who was in the same condition that I had been in during my stay in Texas. He told me he was going home to Tennessee. "Do you know what that means?" I asked. "It means death," he replied. "But better death at home, among my people, than on the streets of Saint Petersburg." And so he went—and died.

Such, in brief, is the story of my quest for health. I have told it because it is typical of what the poor consumptive may expect; and because I hope that, by bringing these facts before the people in the form of a personal narrative, I may have the privilege of influencing public opinion on this important subject. My story is not overdrawn. Indeed, I have told but half of it.

I have not here the space in which to describe the common-sense treatment of consumption by which I have cured myself; but after nine years of experience, during which I have been attended by forty-two doctors, I can unhesitatingly say that every man who professes to have a "cure" which he administers at a high price is either self-deceived or an impostor.

Now, it seems to me that the Government could, without committing itself to a general policy, take this matter up. A hundred thousand young men and women die yearly of tuberculosis. Counting each life at a thousand dollars, this is an annual loss of a hundred million. It would be good business, if nothing more, to stop this terrific drain on the Nation's resources. Or, is there not some private individual, in whom a great heart and a great fortune unite, who could take up the matter? An Anti-tuberculosis League should be established with a permanent organization, with trained solicitors, who should collect funds from all over the country for the purpose of building sanatoria for poor consumptives. Any person who will do this can earn the thanks and gratitude of millions.

And oh! the bitterness of such an experience as mine has been! To see the precious days, and months, and years go by; to know that

the passing opportunities will never recur; to be ostracised, shunned, feared and avoided; to realize that the priceless strength of manhood is being dissipated and wasted in an obscure and inglorious struggle against disease; to awake every morning and see one's brightest dreams, one's dearest ambitions, one's fondest hopes, lying on the paper at the bedside in the form of a loathsome putrescence—and yet to feel that, with a little help, the malady could be overcome, and happiness once more achieved! It is terrible beyond the power of words to portray, terrible beyond the power of imagination to conceive. It is an earthly hell, a present perdition; and yet, in some form, it is the fate of a hundred thousand young Americans each year. And, pity of pities, it could be avoided! The sacrifice is not necessary. A fair understanding on the part of the public, a reasonable expenditure on the part of the Government, and the curse could be ameliorated. There is no valid argument against such a course, and every preventable death from consumption is an irrefragable argument for it. It seems to me that something should be done.

THE RELATION OF DISEASE TO HISTORY.

Dr. Ronald Ross, who is one of the world's authorities on malaria, in an address before the Oxford Medical Society, November, 1906, said:

"Now, what must be the effect of this ubiquitous and everlasting incubus of disease on the people of modern Greece? Remember that the malady is essentially one of infancy among the native population. Infecting the child one or two years after birth, it persecutes him until puberty with a long succession of febrile attacks, accompanied by much splenomegaly and anæmia. Imagine the effect it would produce upon our own children here in Britain. It is true that our children suffer from many complaints—scarlatina, measles, whooping-cough—but these are of brief duration and transient. But now add to these, in imagination, a malady which lasts for years, and may sometimes attack every child in a village. What would be the effect upon our population—especially our rural population—upon their numbers and upon the health and vigor of the survivors? It must be enormous in Greece. People often seem to think that such a plague strengthens a race by killing off the weaker individuals; but this view rests upon the unproven assumption that it is really the weaker children which cannot survive. On the contrary, experience seems to show that it is the stronger blood which suffers most—the fair, northern blood which nature attempts constantly to pour into the southern lands. If this be true, the effect of malaria will be constantly to resist the invigorating influx which nature has provided; and there are many facts in the history of India, Italy, and Africa which could be brought forward in support of this hypothesis.

"We now come face to face with that profoundly interesting subject, the political, economical, and historical significance of this great disease. We know that malaria must have existed in Greece ever since the time of Hippocrates, about 400 B. C. What effect has it had on the life of the country? In prehistoric times Greece was certainly peopled by successive waves of Aryan invaders from the north—probably a fair-haired people—who made it what it became, who conquered Persia and Egypt, and who created the science, arts, and philosophies which we are only developing further today. That race reached its climax of development at the time of Pericles. Those great and beautiful valleys were thickly peopled by a civilization which in some ways has not been excelled. Everywhere there were cities, temples, oracles, arts, philosophies, and a population vigorous and well trained in arms. Lake Kopais, now almost deserted, was surrounded by towns whose massive works remain to this day. Suddenly, however, a blight fell over all. Was it due to internecine conflict or to foreign conquest? Scarcely; for history shows that war burns and ravages, but does not annihilate. Thebes was thrice destroyed, but thrice rebuilt. Or was it due to some cause, entering furtively and gradually sapping away the energies of the race by attacking the rural population, by slaying the new-born infant, by seizing the rising generation, and especially by killing out the fair-haired descendant of the original settlers, leaving behind chiefly the more immunised and darker children of their captives, won by the sword from Asia and Africa? * * *

"I cannot imagine Lake Kopais, in its present highly malarious condition, to have been thickly peopled by a vigorous race; nor, on looking at those wonderful figured tombstones at Athens, can I imagine that the healthy and powerful people represented upon them could have ever passed through the anæmic and splenomegalous infancy (to coin a word) caused by widespread malaria. Well, I venture only to suggest the hypothesis, and must leave it to scholars for confirmation or rejection. Of one thing I am confident, that causes such as malaria, dysentery, and intestinal entozoa must have modified history to a much greater extent than we conceive. Our historians and economists do not seem even to have considered the matter. It is true that they speak of epidemic diseases, but the endemic diseases are really those of the greatest importance. * * *

"The whole life of Greece must suffer from this weight, which crushes its rural energies. Where the children suffer so much, how can the country create that fresh blood which keeps a nation young? But for a hamlet here and there, those famous valleys are deserted. I saw from a spur of Helikon the sun setting upon Parnassus, Apollo sinking, as he was wont to do, towards his own fane at Delphi, and pouring a flood of light over the great Kopaik Plain. But it seemed that he was the only inhabitant of it. There was nothing there. 'Who,' said a rich Greek to me, 'would think of going to live in

such a place as that?' I doubt much whether it is the Turk who has done all this. I think it is very largely the malaria."

In considering carefully this suggestive argument of Major Ross, does it not appear to indicate the tremendous influence that the prevalence of endemic disease must exert upon the progress of modern nations, and does it not bring the thought that those nations that are most advanced in sanitary science and preventive medicine will, other things being equal, assume the lead in the world's work? Who can estimate the influence of the sanitary laws of the Hebrew scriptures upon the extraordinary persistence of that race through centuries of European oppression—centuries full of plague years and of terrible mortality from preventable disease? And what more striking example can be advanced of the effect of an enlightened and scientifically careful attention to the most recent advances of preventive medicine upon the progress of nations than the mortality statistics of the Japanese armies in the recent Russo-Japanese War as compared with the corresponding statistics for the British Army during the Boer War immediately preceding, or for the American Army during the Spanish War at a somewhat earlier date?

The consideration of these elements of national progress has been neglected by historians, but they are nevertheless of deep-reaching importance and must attract immediate attention in this age of advanced civilization. The world has entered the historical age when national greatness and national decay will be based on physical rather than moral conditions, and it is vitally incumbent upon nations to use every possible effort and every possible means to check physical deterioration.—*Economic Loss to the People of the United States Through Insects That Carry Disease, by L. O. Howard, Ph.D.*

REVIEW OF DISEASES FOR FEBRUARY, 1910.

EIGHTY-FOUR COUNTIES REPORTING.

Ninety-seven counties have superintendents of health.

Except in the case of the more contagious diseases, the superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of noncontagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of February the following diseases have been reported from the counties named:

SMALLPOX.—Alamance, 24; Beaufort, 4; Burke, a few; Cabarrus, 2; Caldwell, 22; Carteret, 2; Catawba, 27; Chowan, 3; Cleveland,

3; Craven, 4; Currituck, 1; Davidson, 20; Davie, 11; Duplin, 20; Durham, several; Edgecombe, 1; Forsyth, 12; Franklin, about 150; Gaston, 22; Greene, 10; Guilford, 41; Iredell, 1; Johnston, several; Lee, 3; Lenoir, 6; Lincoln, 7; McDowell, 8; Mecklenburg, 29; Mitchell, many; Nash, 35; New Hanover, 1; Onslow, 2; Orange, 2; Pamlico, 40 or more; Pitt, 8; Richmond, 1; Robeson, 12; Rockingham, 24; Rowan, 14; Rutherford, 23; Sampson, 2; Stokes, 20; Surry, 1; Union, 4; Wake, 28; Washington, 2; Wayne, 20; Wilkes, 30; Wilson, 25; Yadkin, 4; Yancey, 21—51 counties.

Measles.—Beaufort, 4; Cabarrus, epidemic; Chatham, 10; Cherokee, 20; Clay, 8; Cleveland, a good many; Craven, a few; Davidson, 40; Davie, many; Duplin, 10; Durham, many; Forsyth, several; Franklin, 10; Gaston, 1; Granville, 1; Guilford, 29; Henderson, a few cases; Iredell, several; Lee, several; McDowell, 3; Martin, several; Mecklenburg; Montgomery, 20; Nash, much; Pamlico, 20; Person, 10; Randolph, several; Richmond, several; Robeson, 1; Rockingham; Rowan, epidemic; Rutherford, 19; Stokes, 45; Surry, 150; Union, epidemic; Wake, 39; Washington, 1; Wilkes, 50; Yadkin, many; Yancey, 9—40 counties.

Whooping-cough.—Alamance, a few; Alexander, 10; Caldwell, 29; Catawba, 4; Cherokee, 15; Duplin, 8; Durham, a good many, Forsyth, a few; Franklin, 30; Harnett, several; Haywood, epidemic; Henderson, several; Hertford, 35; Iredell, 4; Jackson, several; Lee, 5; McDowell, 10; Martin, a few; Mecklenburg; Mitchell, many; Montgomery, 5; Pasquotank, a few; Person, 12; Richmond, 10; Robeson, 10; Rowan, several; Stokes, 10; Union, many; Wake, 4; Wilkes, a few—30 counties.

Scarlatina.—Alexander, 4; Ashe, 2; Beaufort, 6; Buncombe, 3; Burke, 1; Caldwell, 8; Camden, 30; Cleveland, a few; Craven, 2; Currituck, a few cases; Edgecombe, 3; Forsyth, 2; Gaston, 1; Granville, 3; Greene, 2; Harnett, several; Iredell, 3; Johnston, 1; Macon, a few; Martin, 1; Mecklenburg; Nash, 5; New Hanover, 1; Pasquotank, a few; Person, 8; Rowan, 1; Rutherford, 5; Wake, 3; Warren, 2; Wayne, a few—30 counties.

Diphtheria.—Alexander, 2; Beaufort, 3; Brunswick, 1; Cabarrus, 2; Camden, 1; Chowan, 1; Cherokee, 2; Craven, 2; Currituck, a few; Davidson, 4; Duplin, 6; Forsyth, 3; Granville, 2; Greene, 3; Guilford, 1; Harnett, several; Haywood, 8; Hertford, 1; Iredell, 2; Macon, 1; Mitchell, a few; New Hanover, 4; Person, 3; Robeson, 2; Rockingham; Rowan, 1; Rutherford, 1; Tyrrell, 1; Union, 2; Wake, 7—30 counties.

Typhoid.—Alexander, 4; Alleghany, 3; Bertie, 2; Brunswick, 2; Caldwell, 2; Caswell, 1; Cherokee, 1; Clay, 1; Duplin, 8; Gates, 2; Guilford, 1; Jackson, 1; Lee, 1; McDowell, 1; Martin, a few; Mecklenburg; Mitchell, a few; New Hanover, 1; Pamlico, 3; Pasquotank, 1; Pender, 2; Person, 3; Robeson, 15; Rockingham; Rutherford, 9; Scotland, 3; Stokes, 2; Union, 2; Wake, 4—29 counties.

Malarial Fever, Pernicious.—Beaufort. 1; Bertie, several; Catawba, 3; Franklin, 12; Hyde, a few; Iredell, 1—6 counties.

Pneumonia.—Alamance, some; Alexander, 20; Alleghany, 3; Ashe, 5; Beaufort, several; Bertie, several; Bladen, several; Brunswick, 6; Burke, 1; Cabarrus, several; Caldwell, 21; Camden, 11; Carteret, 2; Catawba, 3; Caswell, several; Chatham, 41; Chowan, a few; Cherokee, 2; Cleveland, a good many; Craven, 2; Currituck, many cases; Davidson, 25; Davie, many; Duplin, 10; Durham, several; Edgecombe, 8; Forsyth, several; Franklin, 28; Gaston, 1; Gates, 15; Graham, 5; Granville, 3; Greene, 4; Harnett, several; Haywood, several; Henderson, 5; Hertford, 8; Hyde, 1; Iredell, many; Jackson, 2; Johnston, several; Jones, 10; Lee, several; Lenoir, 30; Lincoln, 15; McDowell, 5; Macon, 6; Martin, a few; Mecklenburg; Mitchell; Montgomery, 35; Nash, much; Onslow, several; Pamlico, 5; Pender, many; Person, 15; Pitt, 8; Polk, 7; Randolph, several; Richmond, 12; Robeson, 95; Rockingham; Rowan, many; Rutherford, 7; Sampson, several; Scotland, 6; Stokes, 12; Surry, 3; Tyrrell, 10; Union, epidemic; Wake, 24; Warren, several; Watauga, 15; Wayne, a few; Wilkes, 25; Yadkin, several; Yancey, 1—76 counties.

Cerebro-spinal Meningitis.—Gates, 1; Iredell, 1; Jackson, 1; Robeson, 1; Wake, 2—5 counties.

Influenza.—Alamance; Ashe; Beaufort; Bladen; Burke; Caswell; Currituck; Davie; Graham; Granville; Guilford; Harnett; Haywood; Hyde; Iredell; Lincoln; McDowell; Macon; Mitchell; Montgomery; Onslow; Orange; Pender; Person; Richmond; Rockingham; Tyrrell; Wake; Washington—29 counties.

Cholera, in Hogs.—Hertford.

Sanitary Condition of Jail.—Alamance, good; Alexander, good; Alleghany, average; Beaufort, good; Bertie, good; Buncombe, good; Burke, good; Cabarrus, good; Caldwell, good; Catawba, good; Caswell, good; Chatham, good; Chowan, good; Cherokee, good; Cleveland, good; Davidson, good; Davie, good; Duplin, good; Durham, good; Forsyth, good; Franklin, good; Gaston, good; Gates, good; Graham, fair; Granville, bad; Guilford, good; Henderson, good; Hertford, good; Hyde, good; Iredell, first class; Jackson, good; Lenoir, good; Lincoln, good; McDowell, good; Macon, fair; Mecklenburg, good; Montgomery, good; Nash, good; New Hanover, good; Onslow, good; Pender, good; Pitt, jail destroyed by fire; Polk, good; Richmond, new jail; Robeson, good; Rockingham, good; Rowan, good; Sampson, good; Scotland, good; Stokes, very good; Surry, good; Vance, good; Warren, good; Washington, good; Watauga, good; Wayne, good; Wilkes, good; Wilson, good; Yancey, jail well kept—58 counties.

No reports received from Alleghany, Anson, Columbus, Perquimans, Stanly, Swain.

No diseases reported from Vance.

Mortuary Report for February, 1910.

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septæmia.	Pellagra.	Deaths, 0-1.	Deaths, 1-19.	Deaths, 20-39.	Deaths, 40-59.	Deaths, 60 and Over.	Still-born (not included).
ALBEMARLE	W.	--------	2,000	6	6	------	36.0	--	--	--	--	--	1	3	--	--	--	--	--	1	--	--	--	--	1	--	--	--	3	1	2	--	--	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ASHEVILLE	W.	24,000	30,000	25	34	12.5	13.6	--	--	--	--	--	--	2	14	--	3	1	--	3	--	--	--	--	1	--	1	--	1	3	12	6	3	1
	C.	6,000		9		18.0		--	--	--	--	--	--	2	--	1	--	1	--	3	1	--	--	--	1	--	--	--	1	5	1	1	1	2
BEAUFORT	W.	--------	--------	----	----	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	--------		----		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
BESSEMER CITY	W.	--------	1,500	1	1	------	8.0	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
BURLINGTON	W.	--------	6,000	5	6	------	12.0	--	--	--	--	--	--	3	1	--	--	--	--	--	--	--	--	--	--	1	--	--	1	2	--	1	1	1
	C.	--------		1		------		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--
CHAPEL HILL	W.	1,000	1,500	1	1	12.0	8.0	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	1	--
	C.	500		0		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHARLOTTE	W.	--------	45,000	25	43	------	11.5	1	--	--	1	--	1	7	3	1	2	1	2	4	--	--	--	--	1	--	--	1	3	10	1	5	6	2
	C.	--------		18		------		--	--	--	--	--	--	5	--	1	1	1	--	7	1	--	--	--	--	1	--	1	4	4	4	2	4	2
CHERRYVILLE	W.	2,198	2,204	2	2	10.9	10.8	--	--	--	--	--	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	1	--
	C.	6		0		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CONCORD	W.	10,000	12,000	10	17	12.1	17.0	--	--	--	--	--	--	5	1	--	--	--	--	4	--	--	--	--	--	--	--	--	1	4	1	2	2	--
	C.	2,000		7		42.0		--	--	--	--	--	--	3	1	--	1	--	--	1	1	--	--	--	--	--	--	--	3	2	--	--	2	1
DUNN	W.	--------	--------	----	----	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	--------		----		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septæmia.	Pellagra.	Deaths, 0-1.	Deaths, 1-19.	Deaths, 20-39.	Deaths, 40-59.	Deaths, 60 and Over.	Still-born (not included).
DURHAM	W.	--------	22,500	19	39	------	20.8	--	1	--	--	--	3	1	2	3	2	--	--	6	--	--	--	--	--	--	1	--	1	7	4	3	4	1
	C.	--------		20		------		--	--	--	--	--	--	3	7	--	1	--	--	5	3	--	--	--	1	--	--	--	3	4	9	3	1	3
EDENTON	W.	--------	4,500	2	4	------	10.6	--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1	--	1	--
	C.	--------		2		------		--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	1	--
ELIZABETH CITY	W.	6,000	10,000	6	14	12.0	16.8	--	--	--	--	--	--	1	--	--	--	--	--	5	--	--	--	--	--	--	--	--	2	--	--	1	3	--
	C.	4,000		8		24.0		--	--	--	--	--	--	2	--	1	--	--	--	3	--	--	--	--	1	--	1	--	--	7	--	--	1	--
FAYETTEVILLE	W.	6,000	10,000	3	5	------	6.0	--	--	--	--	--	--	--	--	--	--	--	--	3	--	--	--	--	--	--	--	--	--	--	--	2	1	--
	C.	4,000		2		------		--	--	--	--	--	--	1	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	1	1	1
FOREST CITY	W.	--------	--------	1	1	------	------	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GASTONIA	W.	--------	9,500	9	13	------	16.4	--	--	--	--	--	--	3	--	--	--	--	--	3	1	1	--	--	1	--	--	--	2	2	1	1	3	--
	C.	--------		4		------		--	--	--	--	--	--	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	3	--	--	--	--
GOLDSBORO	W.	--------	--------	7	15	------	------	--	--	--	--	--	--	4	1	--	--	--	--	2	--	--	--	--	--	--	--	--	--	1	1	2	3	--
	C.	--------		8		------		--	--	--	--	--	--	--	2	--	--	--	--	6	--	--	--	--	--	--	--	--	2	2	--	1	3	--
GRAHAM	W.	2,450	2,900	0	0	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	450		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GREENSBORO	W.	16,000	20,000	21	38	15.7	22.8	--	--	--	--	--	--	7	1	--	--	1	--	11	--	--	--	1	--	--	--	--	3	4	1	10	3	5
	C.	4,000		17		51.0		--	--	--	--	--	--	7	5	1	1	--	--	3	--	--	--	--	--	--	--	--	4	1	7	3	2	3
GREENVILLE	W.	--------	5,000	1	2	------	4.8	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1	--	--	--
	C.	--------		1		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1	1

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septæmia.	Pellagra.	Deaths, 0-1.	Deaths, 1-19.	Deaths, 20-39.	Deaths, 40-59.	Deaths, 60 and Over.	Still-born (not included).
HENDERSON	W.	-------	7,500	1	9	------	14.4	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--
	C.	-------		8		------		--	--	--	--	--	--	3	--	2	--	--	1	2	--	--	--	--	--	--	--	--	1	1	2	2	2	--
HENDERSONVILLE	W.	-------	3,500	6	8	------	27.4	--	--	--	--	--	--	1	1	--	--	--	--	4	--	--	--	--	--	--	--	--	1	1	1	2	1	--
	C.	-------		2		------		--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1	--	1	--
HERTFORD	W.	-------	2,000	0	2	------	12.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	-------		2		------		--	--	--	--	--	--	--	--	1	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1	1	--	--
HICKORY	W.	4,000	5,000	1	1	3.0	2.4	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--
	C.	1,000		0		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HIGH POINT	W.	9,000	12,000	11	17	13.5	17.0	--	--	--	--	--	--	4	--	1	2	--	1	1	2	--	--	--	--	--	--	--	--	4	1	1	5	1
	C.	3,000		6		24.0		--	--	--	--	--	--	1	1	--	--	--	--	3	--	--	--	--	--	1	--	--	1	1	4	--	--	--
KINGS MOUNTAIN	W.	-------	4,000	3	3	------	9.0	--	--	--	--	--	--	--	1	--	--	--	--	2	--	--	--	--	--	--	--	--	1	--	--	--	2	--
	C.	-------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KINSTON	W.	-------	9,000	6	11	------	14.6	--	--	--	--	--	--	2	--	--	2	--	1	1	--	--	--	--	--	--	--	--	--	1	2	--	3	--
	C.	-------		5		------		--	--	--	--	--	--	--	1	--	--	--	--	4	--	--	--	--	--	--	--	--	1	1	2	1	--	--
LAURINBURG	W.	-------	4,000	2	2	------	6.0	--	--	--	--	--	--	--	1	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	2	--	--	--
	C.	-------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LENOIR	W.	-------	4,000	1	1	------	3.0	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1	--	--	--	--	--
	C.	-------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LEXINGTON	W.	5,000	6,000	2	3	4.8	6.0	--	--	--	1	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1	1	--	--	--	--
	C.	1,000		1		12.0		--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	1	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septæmia.	Pellagra.	Deaths, 0-1.	Deaths, 1-19.	Deaths, 20-39.	Deaths, 40-59.	Deaths, 60 and Over.	Still-born (not included).
LOUISBURG	W.	--------	--------	----	---	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	--------		----		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
McADENSVILLE	W.	--------	1,140	0	0	0.0	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	--------		0		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MARION	W.	--------	1,500	1	1	------	8.0	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MONROE	W.	--------	5,000	4	6	------	14.4	--	--	--	--	--	2	--	--	--	--	--	--	--	1	--	--	--	--	--	--	1	1	1	1	--	1	2
	C.	--------		2		------		--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	1	1	--	--
MOORESVILLE	W.	--------	3,500	9	10	------	34.2	--	--	--	--	--	3	--	2	--	1	--	--	2	--	--	--	--	1	--	--	--	4	3	1	--	1	--
	C.	--------		1		------		--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--
MORGANTON	W.	--------	3,000	4	6	------	24.0	--	--	--	--	--	--	--	2	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	--	4	--	--
	C.	--------		2		------		--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1	--	1	--
MOREHEAD CITY	W.	--------	2,500	2	3	------	14.4	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	1	--	--	1	--	--
	C.	--------		1		------		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--
MOUNT AIRY	W.	--------	5,100	7	9	------	21.1	--	--	--	--	--	4	--	--	1	--	--	1	--	--	--	--	1	--	--	--	2	2	--	--	--	3	--
	C.	--------		2		------		--	--	--	--	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	--
NEW BERN	W.	7,500	15,000	3	17	4.8	13.6	--	--	--	--	--	--	--	1	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	1	--	2	--
	C.	7,500		14		22.4		--	--	1	--	--	2	3	2	3	--	--	--	3	--	--	--	--	--	--	--	--	2	2	3	3	4	--
NEWTON	W.	3,000	3,250	1	2	4.0	7.3	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--
	C.	250		1		4.8		--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Smallpox.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septæmia.	Pellagra.	Deaths, 0-1.	Deaths, 1-19.	Deaths, 20-39.	Deaths, 40-59.	Deaths, 60 and Over.	Still-born (not included).
OXFORD	W.	2,200	4,000	1	1	5.4	3.0	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--
	C.	1,800		0		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PLYMOUTH	W.	--------	2,500	1	2	------	9.6	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--
	C.	--------		1		------		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--
RALEIGH	W.	14,000	25,000	23	40	19.7	19.2	--	--	--	--	--	--	--	5	3	1	2	1	--	9	1	--	--	--	--	--	--	1	1	--	7	4	11	3
	C.	11,000		17		18.5		--	--	--	--	--	--	--	2	3	--	2	1	1	7	1	--	--	--	--	--	--	--	3	1	3	5	5	1
RANDLEMAN	W.	--------	2,800	3	3	------	12.8	--	--	--	--	--	--	--	--	1	--	--	1	--	--	--	--	--	--	--	1	--	--	--	--	1	--	1	1	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REIDSVILLE	W.	3,034	5,188	6	11	23.7	25.4	--	--	--	--	--	--	--	--	1	1	1	--	1	1	--	--	--	1	--	--	--	--	--	--	--	--	2	4	1
	C.	2,154		5		27.9		--	--	--	--	--	--	--	2	2	--	--	1	--	--	--	--	--	--	--	--	--	--	--	1	1	1	2	1
ROANOKE RAPIDS	W.	2,000	2,025	1	1	6.0	5.9	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--
	C.	25		0		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ROCKINGHAM	W.	--------	3,500	1	2	------	6.8	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1
	C.	--------		1		------		--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--
ROCKY MOUNT	W.	6,000	9,000	5	11	10.0	14.6	--	--	--	--	--	--	--	1	--	1	--	--	--	3	--	--	--	--	--	--	--	--	1	--	1	1	2	--
	C.	3,000		6		24.0		--	--	--	--	--	--	--	4	1	--	1	--	--	--	--	--	--	--	--	--	--	--	2	2	--	1	1	--
ROXBORO	W.	2,000	2,500	3	4	18.0	19.2	--	--	--	--	--	--	--	--	--	--	--	--	--	3	--	--	--	--	--	--	--	--	2	--	--	--	--	1	--
	C.	500		1		24.0		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--
SALEM	W.	3,000	3,400	5	5	20.0	17.6	1	--	--	--	--	--	--	1	--	1	1	--	--	--	--	--	1	--	--	--	--	--	1	--	--	--	1	3	1
	C.	400		0		0.0		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septæmia.	Pellagra.	Deaths, 0-1.	Deaths, 1-19.	Deaths, 20-39.	Deaths, 40-59.	Deaths, 60 and Over.	Still-born (not included).
SALISBURY	W.	12,000	16,000	12	29	12.0	21.7	--	--	--	--	--	--	5	--	--	1	--	--	5	--	--	--	--	--	--	--	1	2	4	2	--	4	--
	C.	4,000		17		51.0		1	--	--	--	--	--	4	3	--	1	1	--	4	2	--	--	--	--	--	--	1	2	2	9	3	1	1
SANFORD	W.	--------	4,000	6	6	------	18.0	--	--	--	--	--	1	2	--	--	--	--	--	2	--	--	--	--	1	--	--	--	--	1	1	3	1	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SCOTLAND NECK	W.	1,200	1,800	1	2	1.0	13.3	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1	--	--	--
	C.	600		1		2.0		--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
SHELBY	W.	--------	4,000	1	2	------	6.0	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1	--	--	--	--
	C.	--------		1		------		--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--
SOUTHPORT	W.	--------	1,500	1	2	------	16.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1	--
	C.	--------		1		------		--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--
STATESVILLE	W.	--------	5,000	6	6	------	14.4	--	--	--	--	--	--	1	--	1	--	--	--	4	--	--	--	--	--	--	--	--	--	1	--	2	3	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TARBORO	W.	2,800	3,600	1	4	------	13.3	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	1	--	--
	C.	800		3		------		--	--	--	--	--	--	--	1	--	--	--	--	2	--	--	--	--	--	--	--	--	--	1	1	--	1	--
WADESBORO	W.	2,200	3,500	1	3	5.4	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1	--	--
	C.	1,300		2		18.4		--	--	--	--	1	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	1	--	1	--	--	--
WASHINGTON	W.	--------	10,000	5	7	------	8.4	--	--	--	--	--	--	--	1	--	--	--	--	4	--	--	--	--	--	--	--	--	--	--	2	1	2	--
	C.	--------		2		------		--	--	--	--	--	--	--	1	--	--	--	--	1	--	--	--	--	--	--	--	--	1	--	1	--	--	1
WAYNESVILLE	W.	--------	3,500	0	0	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	--------		0		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

MORTUARY REPORT—*Continued.*

Towns Reporting.	Races.	Population. By Races.	Population. Total.	Total Deaths. By Races.	Total Deaths. By Towns.	Temporary Annual Death Rate per 1,000. By Races.	Temporary Annual Death Rate per 1,000. Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Tuberculosis.	Brain Disease.	Heart Disease.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Cancer.	Meningitis.	Influenza.	Puerperal Septæmia.	Pellagra.	Deaths, 0-1.	Deaths, 1-19.	Deaths, 20-39.	Deaths 40-59.	Deaths, 60 and Over.	Still-born (not included).
WELDON	W.	--------	--------	----	----	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	C.	--------		----		------		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WILMINGTON	W.	--------	35,000	9	32	------	1.9	--	--	--	--	--	--	1	--	--	2	--	--	5	--	1	--	--	--	--	--	--	1	2	4	--	2	6
	C.	--------		23		------		--	--	1	--	--	--	6	2	1	1	--	2	9	1	--	--	--	--	--	--	--	10	2	5	2	4	9
WILSON	W.	5,000	8,500	2	7	4.8	9.8	--	--	--	--	--	--	--	--	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--
	C.	3,500		5		17.0		--	--	--	--	--	--	1	2	--	1	1	--	--	--	--	--	--	--	--	--	--	--	1	2	2	--	--
WINSTON	W.	14,000	22,000	17	32	14.5	17.4	--	--	--	--	--	--	5	2	--	4	--	--	5	--	--	--	--	1	--	--	--	5	3	3	3	3	--
	C.	8,000		15		22.5		--	--	--	--	1	--	6	2	--	1	--	--	5	--	--	--	--	--	--	--	--	4	3	4	1	3	--

SUMMARY OF MORTALITY REPORTS FOR FEBRUARY, 1910.

	White.	*Colored.*	*Total.*
Aggregate population	159,582	67,790	440,407
Aggregate deaths	319	245	564
Temporary annual death rate, per 1,000	23.3	43.3	15.3
Cause of Death.			
Typhoid fever	1	1	2
Scarlet fever	1	0	1
Smallpox	1	0	1
Malarial fever	0	2	2
Diphtheria	3	0	3
Whooping-cough	2	2	4
Measles	11	0	11
Pneumonia	69	65	134
Tuberculosis	44	44	88
Brain disease	10	10	20
Heart disease	27	17	44
Neurotic diseases	6	6	12
Diarrheal diseases	5	4	9
All other diseases	110	75	185
Accident	7	10	17
Suicide	2	0	2
Violence	0	0	0
Cancer	4	0	4
Meningitis	9	3	12
Influenza	1	3	4
Puerperal septæmia	2	1	3
Pellagra	4	2	6
Total (excluding still-born)	319	245	564
Still-born	24	25	49
Deaths 0— 1 year	43	47	90
Deaths 1—19 years	63	50	113
Deaths 20—39 years	57	69	126
Deaths 40—59 years	64	36	100
Deaths 60 years and over	92	43	135
Total	319	245	564

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